

## Attachment 3: Work Plan

Attachment 3 consists of the following:

✓ **Work Plan**

The following Work Plan has been prepared to document all necessary details to show the process by which the Upper Mokelumne River Watershed Authority (UMRWA) will move forward with updating and adopting a revised Integrated Regional Water Management Plan (IRWMP), compliant with the plan standards as outlined in the California Department of Water Resource *Proposition 84 & Proposition 1E Integrated Regional Water Management Guidelines* (August 2010).



# MOKELUMNE/AMADOR/CALAVERAS INTEGRATED REGIONAL WATER MANAGEMENT PLAN

*Proposition 84 Planning Grant Work Plan*

September 27, 2010



# MOKELUMNE/AMADOR/CALAVERAS INTEGRATED REGIONAL WATER MANAGEMENT PLAN

## Contents

Background .....	1
Regional Water Management Group .....	1
Introduction to UMWRA .....	2
UMRWA and Regional Water Resource Management .....	3
Other Regional Planning Participants .....	4
MAC IRWM Region .....	5
Regional Boundaries .....	6
Watersheds and Groundwater Basins .....	8
Water-Related Infrastructure .....	9
Ecological and Environmental Resources .....	11
Political and Socioeconomic Composition .....	12
Water Demand and Supplies .....	16
IRWM Plan .....	25
Public Process .....	25
Background .....	25
Community Outreach Plan .....	25
RPC Governing Procedures and Guidelines .....	28
Public Access and Participation .....	29
Objectives & Conflicts .....	30
Regional Priorities .....	32
Technical Analysis and Data Management .....	35
Technical Analysis .....	35
Data Management .....	36
Resource Management Strategies .....	38
Implementation of the IRWMP .....	38
Impacts and Benefits of IRWM Plan Implementation .....	39
Current IRWM Plan Standards .....	41
Work Plan Tasks .....	47
Task 1 – Update and Integrate IRWM Plan .....	47
<b>Subtask 1.1 – Sections to be Updated with Existing Information .....</b>	<b>47</b>

<b>Subtask 1.2 – Sections to be Reviewed and Revised as Appropriate .....</b>	<b>48</b>
<b>Subtask 1.3 – New Plan Sections.....</b>	<b>50</b>
<b>Subtask 1.4 – IRWM Plan Update Process Management .....</b>	<b>51</b>
<b>Subtask 1.5 – IRWM Plan Production and Adoption .....</b>	<b>52</b>
<b>Task 2 – Conflict Assessment and Collaborative Decision Making .....</b>	<b>52</b>
<b>Subtask 2.1: Conflict Assessment and Report.....</b>	<b>53</b>
<b>Subtask 2.2: Collaborative Decision Making Process Options and Selection .....</b>	<b>54</b>
<b>Subtask 2.3: Joint Problem Solving Statement to Support Collaborative Decision Making..</b>	<b>54</b>
<b>Subtask 2.4: MAC Region Collaborative Decision Making Plan .....</b>	<b>55</b>
<b>Subtask 2.5: UMRWA Board Workshop.....</b>	<b>55</b>
<b>Task 3 – Public Outreach.....</b>	<b>55</b>
<b>Subtask 3.1 – Regional Participants Committee and Community Outreach .....</b>	<b>56</b>
<b>Subtask 3.2 – DAC/Native American Outreach .....</b>	<b>57</b>
<b>Subtask 3.3 – Website Update .....</b>	<b>57</b>
<b>Task 4 – Funding Administration.....</b>	<b>58</b>
<b>Subtask 4.1 – DWR Prop 84 Funding Agreement Administration.....</b>	<b>58</b>
<b>Subtask 4.2 – Consultant Contract Administration.....</b>	<b>58</b>
<b>Subtask 4.3 – Reporting (Quarterly and Final Report) .....</b>	<b>58</b>

# MOKELUMNE/AMADOR/CALAVERAS INTEGRATED REGIONAL WATER MANAGEMENT PLAN

## *Proposition 84 Planning Grant Work Plan*

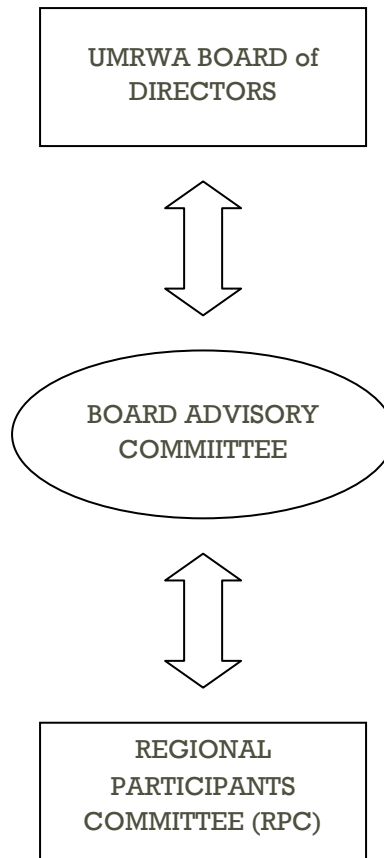
### BACKGROUND

This section provides a description of the history of the Integrated Regional Water Management (IRWM) planning process in the Mokelumne/Amador/Calaveras IRWM Region (MAC Region) and the current status of the IRWM region as a whole.

### Regional Water Management Group

As described in the November 2006 MAC IRWM Plan (MAC IRWMP), the MAC IRWM planning region was formed based on a cooperative effort by Amador Water Agency (AWA), Calaveras County Water District (CCWD), Amador County, City of Jackson, City of Sutter Creek, City of Plymouth, Amador Regional Sanitation Authority (ARSA) and East Bay Municipal Utility District (EBMUD). The entities entered into a Memorandum of Understanding (MOU) on October 3, 2006 for the purposes of coordinating water resources planning and implementation activities, and formed the official MAC region Regional Water Management Group (RWMG). Under this governance structure, AWA assumed the role of region administrator for the RWMG.

During the period between the completion and adoption of the 2006 MAC IRWMP and submittal of the RAP application in April of 2009, the governance structure in the MAC region was modified with the Upper Mokelumne River Watershed Authority (UMRWA or Authority) assuming the role as the RWMG. UMRWA is described in the following section. Under this new governance structure, the Authority is supported by two committees in their implementation and management of the MAC IRWMP: the Board Advisory Committee (or BAC) and the Regional Participants Committee (or RPC). Each of these committees is discussed further below in Section 1.1.3 and in Section 1.4 (Public Process). The current governance structure for the MAC region is shown below in Figure 1.



**Figure 1: MAC IRWMP Region Governance Structure**

## Introduction to UMWRA

The Upper Mokelumne River Watershed Authority is a regional water management group as defined by the California Water Code. It is a Joint Powers Agency, comprised of six water agencies and the counties of Amador, Calaveras and Alpine. The six water agencies are Amador Water Agency, Calaveras County Water District, Calaveras Public Utility District, East Bay Municipal Utility District, Jackson Valley Irrigation District and Alpine County Water Agency. The Authority was formed in the year 2000 to address then existing and emerging issues related to water quality, water supply and the environment. During its eight year existence the Authority has served as a venue for developing constructive, community supported solutions to water and watershed issues, a venue which had historically not existed.

The Authority has been engaged in a wide variety of water resource matters since its inception in 2000. At the time it was formed, it was Pacific Gas & Electric's (PG&E's) anticipated divestiture of its hydropower assets (pursuant to California's energy deregulation program), and the Authority's acquisition of PG&E's Mokelumne River Project that were the focus of the Authority's attention. When the federal court approved PG&E's bankruptcy reorganization plan, Authority member concerns regarding the divestiture of the Mokelumne River Project were generally abated and Authority acquisition efforts halted. With acquisition of PG&E's Mokelumne Project no longer an objective, the Authority in 2005 refocused its attention on water quality issues, potential watershed projects and cooperative water supply planning efforts between the Authority's member agencies.

Several of the Authority's recent initiatives and accomplishments are described in the MAC region's Regional Acceptance Process (RAP) application, submitted to California Department of Water Resources (DWR) in April of 2009. These initiatives are also summarized in Table 1, below and represent the Authority's wide ranging interests and commitment to regional water resource planning and programs.

**Table 1: UMRWA Initiatives and Accomplishments**

Public Involvement Plan for Integrated Regional Planning	Developed public involvement aspects of MAC IRWMP, including: <ul style="list-style-type: none"> <li>- Preparation of the MAC IRWMP Community Outreach Plan</li> <li>- Formation of the Regional Participants Committee</li> </ul>
Inter-Regional Water Resources Project Investigation	Ongoing coordination and exploration of potential inter-regional water resource project alternatives with IRWM regions in San Joaquin Valley through the Mokelumne River Forum (a DWR-facilitated process).
Upper Mokelumne River Watershed Assessment and Planning Project	Developed a comprehensive watershed project to advance the understanding of watershed water quality and related environmental issues and to develop tools and plans to facilitate the long-term evaluation and management of the Upper Mokelumne River watershed water and natural resources.
Youth Watershed Stewardship Program	In a partnership with the Central Sierra Resources Conservation and Development and the Stewardship Through Education LLC, developed and presented a series of educational programs to public schools in Amador and Calaveras Counties. This is an ongoing effort that includes annual in-service teacher training and in-class and field trip lessons.
Water Conservation Plan: A Guide for Assisting Authority Members Preparing Water Agency Conservation Plans	Developed this guidance document to assist UMRWA member agencies in establishing individual agency-specific water conservation plans. Designed to serve as a resource document for water utility staff.

## UMRWA and Regional Water Resource Management

As a Joint Powers Agency, UMRWA is comprised of all the public agencies having the widest range of water resource management responsibilities in the region. The individual member agencies that comprise the Authority, along with their statutory basis, water management authorities, and intentions regarding adoption of the MAC Plan, are presented in Table 2, below.



**Table 2: UMWRA JPA Member Agencies**

<b>Member Agency</b>	<b>Statutory Basis</b>	<b>Water Management Authorities</b>	<b>Adopted 2006 MAC Plan</b>
Alpine County	A political subdivision of the State of California	Storm water, flood control, watershed protection, environmental health	Yes
Alpine County Water Agency	A water agency formed pursuant to a special act of the California Legislature	Water, wastewater	Yes
Amador County	A political subdivision of the State of California	Storm water, flood control, watershed protection, environmental health	Yes
Amador Water Agency (AWA)	A water agency formed pursuant to a special act of the California Legislature	Water, wastewater	Yes
Calaveras County	A political subdivision of the State of California	Storm water, flood control, watershed protection, environmental health	Yes
Calaveras County Water District (CCWD)	A California water district	Water, wastewater, hydropower	Yes
Calaveras Public Utility District (CPUD)	A California public utility district	Water, wastewater	Yes
East Bay Municipal Utility District (EBMUD)	A California municipal utility district	Water, wastewater, hydropower	Yes
Jackson Valley Irrigation District (JVID)	A California irrigation district	Water, wastewater, hydropower	Yes

### Other Regional Planning Participants

Other participants in the MAC IRWM planning process include other public agencies, private corporations, disadvantaged communities and non-governmental organizations; these entities are identified and listed in Table 3. The third column in the table indicates the participant's working relationship in the MAC regional planning process as either RPC member or stakeholder.

The RPC members are presently participating in the IRWM planning process. Stakeholders are those organizations that have been invited to participate, but to date, have chosen not to and instead follow and participate in the IRWM planning process through public forums. Many of these stakeholders are expected to participate in the planning process in the future, either through the RPC or through the public outreach process.

**Table 3: Other Participants**

<b>Participant Categories</b>	<b>Organizations/Stakeholders</b>	<b>Working Relationship w/MAC Plan</b>
Wastewater agencies	Amador Regional Sanitation Authority	Stakeholder
Cities and special districts	Amador City City of Ione City of Jackson City of Plymouth City of Sutter Creek Mokelumne Hill Sanitation District Wallace Community Services District	Stakeholder Stakeholder RPC member RPC member Stakeholder RPC member Stakeholder
Electrical corporation	Pacific Gas and Electric	RPC member
Stewardship organizations	Amador Fly Fishers Foothill Conservancy Alpine Watershed Group Upper Mokelumne Watershed Council	RPC member RPC member RPC member RPC member
Industry organizations	Sierra Pacific Industries	RPC member
Disadvantaged communities	City of Jackson City of Plymouth Mokelumne Hill West Point	RPC Member RPC member RPC member RPC member
Federal agencies	US Forest Service	RPC member

## MAC IRWM Region

The MAC IRWM region became a DWR-approved region during the 2009 Region Acceptance Process. The region incorporates all of Amador County and sizeable portions of Calaveras and Alpine Counties. Included within the region's boundary are cities, water and irrigation districts, watershed management areas, portions of groundwater basins, disadvantaged communities, and large tracts of federally-owned lands. Figure 1 shows the MAC IRWM region.

The approximately 1.25 million acre region (about 1,950 square miles) is located in the Sierra Nevada foothills, approximately 45 miles southeast of Sacramento. Situated in a transitional zone between the San Joaquin Valley and the Sierra Nevada, the region stretches across varied topography and microclimates. Warm, dry summers and mild winters are predominant in the western foothills with temperature ranging from the middle 30s to the high 90s (in degrees Fahrenheit). Mild summers and cold winters characterize the mountainous eastern region with temperatures ranging from the low 20s to the middle 80s. Hot, dry summers and mild winters prevail in the Central Valley portion of the region with temperatures ranging from middle 30s to highs in excess of 100°F.

The primary source of water in the region is the Mokelumne and Calaveras River watersheds (and to a lesser extent, the Cosumnes River watershed), with snowmelt and rainfall from the Sierra Mountain Range transported via the rivers and their tributaries. Although the region is famous for its historic

mining and existing active mines (asbestos, gold, industrial minerals, limestone, sand and gravel), current land uses also include cattle ranching, orchards, timber, vineyards and row crops.

## Regional Boundaries

The boundaries of the MAC IRWMP region were determined using a variety of physical, political and water management considerations. The primary physical determinant in establishing the region was the Mokelumne River watershed. The secondary determinant was the Calaveras River watershed. These two rivers and their watersheds are the predominant water features in the region, and during the past 150 years, have supported a myriad of activities including hydropower generation, agriculture, mining, domestic water supply, recreation, fisheries and more.

The Mokelumne River is the boundary between Amador and Calaveras Counties and has long served the needs of cities and communities within these counties. Since the 1920s, the Mokelumne River has been the primary source of water used by EBMUD to serve East Bay communities. Thus, for nearly one hundred years, the local governments and water agencies of Amador and Calaveras Counties have been competing with EBMUD and the environment for Mokelumne River water supply. During this period, there have been many water rights decisions, court decrees, agreements, and contracts pertaining to the Mokelumne River, some of which have settled to some degree, the many disputes that have arisen between Amador and Calaveras agencies, downstream Mokelumne River users in San Joaquin County, and EBMUD. But as the Foothill and East Bay communities continue to grow, so does the need for additional water supply. Consequently, one of the primary purposes of establishing the MAC Region has been to promote and facilitate a collaborative planning process to develop program and project solutions which address future Amador, Calaveras, and East Bay water resource needs. While the Mokelumne River represents a key central feature in the MAC region, the exterior geographic boundaries of the region define its relationship to neighboring IRWM regions. Presented below are the four primary regional boundaries and the reasons these boundaries were used in defining the MAC region.

Northern boundary: The political boundary separating the MAC region from its northern neighbor is the northern boundary of Amador County. The county line was selected as the MAC region's northern border because (1) the City of Plymouth, the one incorporated community outside the Mokelumne River watershed in Amador County, is provided water from the Mokelumne River by Amador Water Agency, and (2) the entire area south of the county line lies within Amador County and within AWA's service area. Both of these Amador agencies (the County and AWA) are members of UMRWA, the regional water management group responsible for the MAC Plan Update and implementation.

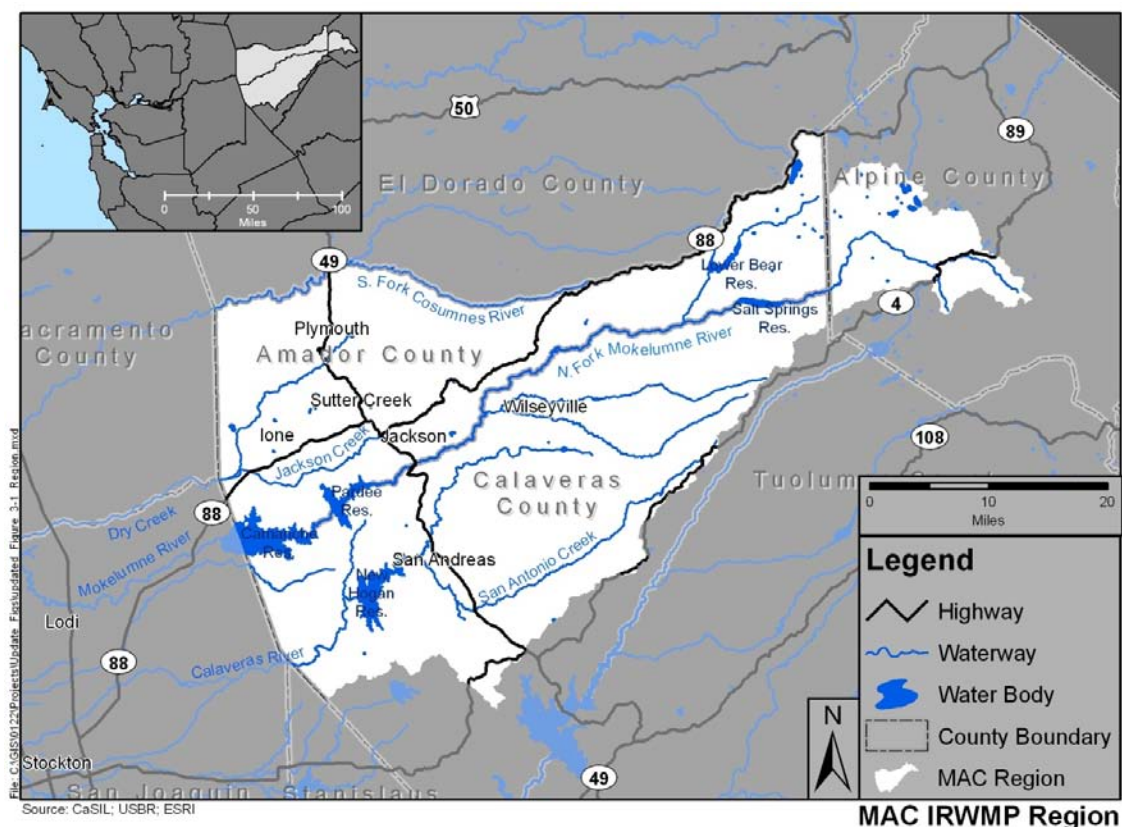
It should be noted that the southern boundary of the CABY IRWM region encroaches into the northern area of the MAC region. The CABY IRWM region uses the South Fork Cosumnes River watershed boundary as its regional delineator. In the Plymouth area, the Amador County border and Cosumnes River watershed boundaries overlap, resulting in an overlapping boundary between the two regions. This overlap is not considered to be a significant planning obstacle as was discussed in the RAP application for this region. The CABY IRWM region and MAC Region cooperate and coordinate, as necessary, to implement their plans.

Southern boundary: The Calaveras River watershed forms the southern boundary of the MAC region. This watershed lies almost entirely within Calaveras County, with just the upper reaches of the watershed located in Alpine County. The Calaveras River watershed was selected to represent the southern border of the MAC region because (1) the proximity of the Calaveras River watershed and New Hogan reservoir to the Mokelumne River and Camanche Reservoir may present feasible water management opportunities during the regional planning process; (2) western Calaveras County

overlies the upper reach of the Eastern San Joaquin Groundwater Basin that provides conjunctive use opportunities; (3) the Stanislaus River watershed, south of the Calaveras River watershed, is a major water source for communities in southern Calaveras and Tuolumne Counties; and (4) the Stanislaus River watershed is being considered as being within the Tuolumne-Stanislaus IRWM region.

**Eastern boundary:** The eastern MAC boundary is defined by the upper, eastern-most portions of the Mokelumne and Calaveras River watersheds all of which lie in Alpine County. There is also a small portion of the South Fork American River watershed (a portion of Amador County near Kirkwood Meadows) contained in the region along the eastern boundary. The hydrologic boundaries of the Mokelumne and Calaveras River watersheds were selected to represent the eastern MAC region boundary because (1) these areas are the headwaters of the two river systems which are critical water supply sources for MAC region communities, and (2) lands adjacent and east of this boundary are generally within watersheds which drain eastward to the Carson River watershed.

**Western boundary:** The political boundaries that separate Amador and Calaveras Counties from their western neighbor, San Joaquin County, form the western boundary of the MAC region. This border was determined to be the best western extent of the MAC region because (1) the water supply issues facing the western portions of Amador and Calaveras counties must be addressed by water agencies with the authority and jurisdiction to do so (AWA and CCWD), and (2) other than the western portion of Calaveras County that overlies the Eastern San Joaquin Groundwater Basin, the groundwater resource issues that predominately characterize the Eastern San Joaquin IRWM region are very different than the predominately surface water issues that must be addressed by the MAC region.



**Figure 2: MAC IRWMP Region**

## Watersheds and Groundwater Basins

The MAC region is comprised of two major river systems, the Mokelumne River and the Calaveras River. In addition, the region contains limited groundwater resources located in the western portion of Calaveras County, along with small isolated pockets of groundwater in fractured rock geologic formations that underlie western Amador County. These natural water resources are described immediately below, followed by a description of the region's manmade infrastructure.

### Mokelumne River Watershed

The Mokelumne River originates in the Sierra Nevada and flows west to its confluence with the Cosumnes River in the Central Valley (San Joaquin County). With a watershed encompassing approximately 630 square miles, the annual average runoff of the Mokelumne River at Pardee Reservoir is 753,000 acre-feet, with the majority of flow derived from snowmelt. Annual precipitation and stream flow in the Mokelumne River is extremely variable both month to month and year to year. Stream flow is modified by upstream diversions and regulated by reservoir storage operations for hydroelectric power generation and water supply. The Mokelumne River watershed is typically subdivided into the Upper Mokelumne River watershed, extending from its upper reaches in eastern Alpine County to Pardee Reservoir, and the Lower Mokelumne River watershed, extending from below Pardee Reservoir through northeastern San Joaquin County to the river's confluence with the Cosumnes River. More detailed information regarding the Mokelumne River Watershed can be found in the 2009 RAP application and the 2006 MAC IRWMP.

### Calaveras River Watershed

The 470 square mile Calaveras River watershed contains lands located in Calaveras and San Joaquin counties. The majority of the watershed lies in Calaveras County with the smaller western-most portion of the watershed located in San Joaquin County. The Calaveras River is tributary to the San Joaquin River.

Like the Mokelumne River, the Calaveras River watershed may be divided into the Upper Calaveras River watershed and the Lower River watershed, with the dividing line occurring just west of New Hogan Reservoir. Flow in the Calaveras River is primarily derived by rainfall with small contributions by snowmelt. New Hogan Dam was constructed on the Calaveras River in 1963 for flood control and municipal, industrial and irrigation purposes. Releases from New Hogan Dam currently controls flows on the Lower Calaveras River. The upper watershed above new Hogan reservoir covers 363 square miles with an average annual runoff of about 166,000 acre-feet.

The Lower Calaveras River – Mormon Slough area is below New Hogan Dam. The watershed for this portion of the river encompasses approximately 115,000 acres and receives up to 90,000 acre-feet of surface water supply from the Calaveras River. The four main tributaries below New Hogan are Cosgrove Creek, South Gulch, Indian Creek, and Duck Creek. Cosgrove Creek provides the largest run-off contribution to the Calaveras River, which has been as much as 8,500 acre-feet in some years.

### Groundwater

Groundwater quantity and quality in the Amador County portion of the MAC region varies considerably from well site to well site due to the small and unpredictable yields of the fractured rock system that typifies the underlying geology. Groundwater accounts for approximately two percent of AWA's total water supply. It is only used in the communities of La Mel Heights and Lake Camanche Village at a total rate of approximately 200 acre-feet per year (AFY). Wells serving the Lake Camanche Village area of Amador County are located within the Cosumnes sub-basin portion of the San Joaquin Valley Groundwater Basin. The Cosumnes sub-basin is approximately 439 square miles



in size, and is bounded on the north and west by the Cosumnes River, on the east by the bedrock of the Sierra Nevada Mountains, and on the south by the Mokelumne River.

A portion of western Calaveras County overlies the Eastern San Joaquin groundwater sub-basin. This sub-basin is a part of the larger San Joaquin Valley groundwater basin. This groundwater sub-basin extends from the western corner of the County to west of the cities of Stockton and Lodi. Use of groundwater for irrigation and municipal purposes has resulted in a continuous decline of available groundwater over the past 40 years. As of 1990, annual groundwater extractions in San Joaquin County have exceeded the estimated safe yield. Overdraft of the groundwater in this sub-basin has created groundwater depressions in areas near Stockton and east of Lodi. The Cosumnes groundwater sub-basin of the San Joaquin Valley Basin is located north and adjacent to the Eastern San Joaquin groundwater sub-basin.

Groundwater resources are known to exist in other areas of the MAC region, although there are no officially delineated groundwater basins defining these areas. In fact, most of the groundwater used within the region is obtained from areas outside of the Eastern San Joaquin groundwater sub-basin. This groundwater may be found in hard rock formations and extracted in relatively small amounts from fractured rock, faults, or changes in rock strata.

### Water-Related Infrastructure

Surface water provides the majority of water supply in the MAC region. Associated with the surface water bodies within the region are several major water-related projects. Figure 3 shows the major water infrastructure within the study region and highlights the regions dependence on the Mokelumne and Calaveras Rivers. The water infrastructure includes major conveyances, water treatment plants, pump stations and water storage facilities.

Amador Water System – Takes Mokelumne River water transported via PG&E's Electra Tunnel to Lake Tabeaud. Lake Tabeaud then feeds the Amador Canal, transporting water to treatment plants in Sutter Hill and Ione. The 23-mile Amador Canal was replaced in 2008 with an 8-mile pipeline project. Buckhorn, Ione and Tanner Water Treatment Plants, located in Pioneer, Ione and Sutter Hill, respectively, are owned and operated by AWA and provide treated surface water to AWA's service area.

Camanche Dam and Reservoir – Owned and operated by EBMUD, Camanche Reservoir has a capacity of 417,120 AF. Camanche Reservoir is primarily operated for flood control and to meet downstream flow requirements and riparian needs. Hydroelectric power generation also occurs at the Camanche Reservoir. The reservoir also regulates Mokelumne River water flows pursuant to agreements and entitlements held by Woodbridge Irrigation District and the North San Joaquin Water Conservation District, both located within San Joaquin County.

Central Amador Water Project System – Provides wholesale treated water to upcountry communities in Amador County such as Pine Grove, Pioneer, and the Mace Meadows areas. Water is diverted from the Tiger Creek Afterbay (a component of PG&E's Mokelumne River hydroelectric project) and pumped to the Buckhorn Treatment Plant in Pioneer to be treated and distributed to the local communities.

Groundwater Wells – A single groundwater well, located in the La Mel Heights subdivision, is used by AWA to supply La Mel Heights customers, and three groundwater wells located in the Lake Camanche area are used to supply Lake Camanche residents.

Ione Pipeline - Transports raw water from the Tanner Reservoir to the Ione Water Treatment Plant where it is treated for use by customers of Ione.

Jenny Lind System – The source of water for the Jenny Lind Improvement District is an infiltration gallery one mile below the New Hogan Dam on the Calaveras River. Water allocation is highly dependent on the water year. CCWD's water allocation for this system is 30,928 AF plus riparian water rights of 350 AF. Water for the system is treated at the Jenny Lind Water Treatment Plant. The Dr. Joe Waidhofer WTP capacity is rated at 45 MGD, and delivers water to the City of Stockton. Eight million gallons of water per day is also delivered to Jenny Lind WTP, which will be augmented with a new regional facility within the next 5 years, or as development pressures rebound from the slow economy.

Lake Tabeaud – Used by AWA to divert water from the Mokelumne River. It has a storage capacity of 1,170 AF. Water from Lake Tabeaud is conveyed by pipeline to the Tanner Water Treatment Plant where it is treated for use by the customers of Jackson, Sutter Creek, Amador City, and Drytown.

Mokelumne Aqueducts – Raw water from Pardee Reservoir is moved through the Pardee Tunnel to the three Mokelumne Aqueducts near Valley Springs in Calaveras County. All three steel pipelines extend 82.2 miles from the Pardee Tunnel to the east end of the Lafayette Aqueduct in Walnut Creek, east of San Francisco Bay.

New Hogan Dam and Reservoir – Stores approximately 317,000 AF of water for municipal, industrial, irrigation, and flood control purposes. Flood control releases are controlled by the U.S. Army Corp of Engineers with Stockton East Water District operating the reservoir at all other times.

New York Ranch Reservoir - The reservoir, located just southwest of the intersection of Ridge and Climax Roads, currently serves as a holding basin for water flowing via the Amador Canal pipeline from Lake Tabeaud to the Tanner Reservoir near Sutter Hill.

Pardee Dam and Reservoir – Owned and operated by EBMUD, Pardee Reservoir has a capacity of 197,950 AF and is operated as a water supply reservoir. Water from Pardee is conveyed by the Mokelumne Aqueducts to the EBMUD service area approximately 91 miles away. Hydroelectric power generation (30 MW) is produced at the Pardee Powerhouse.

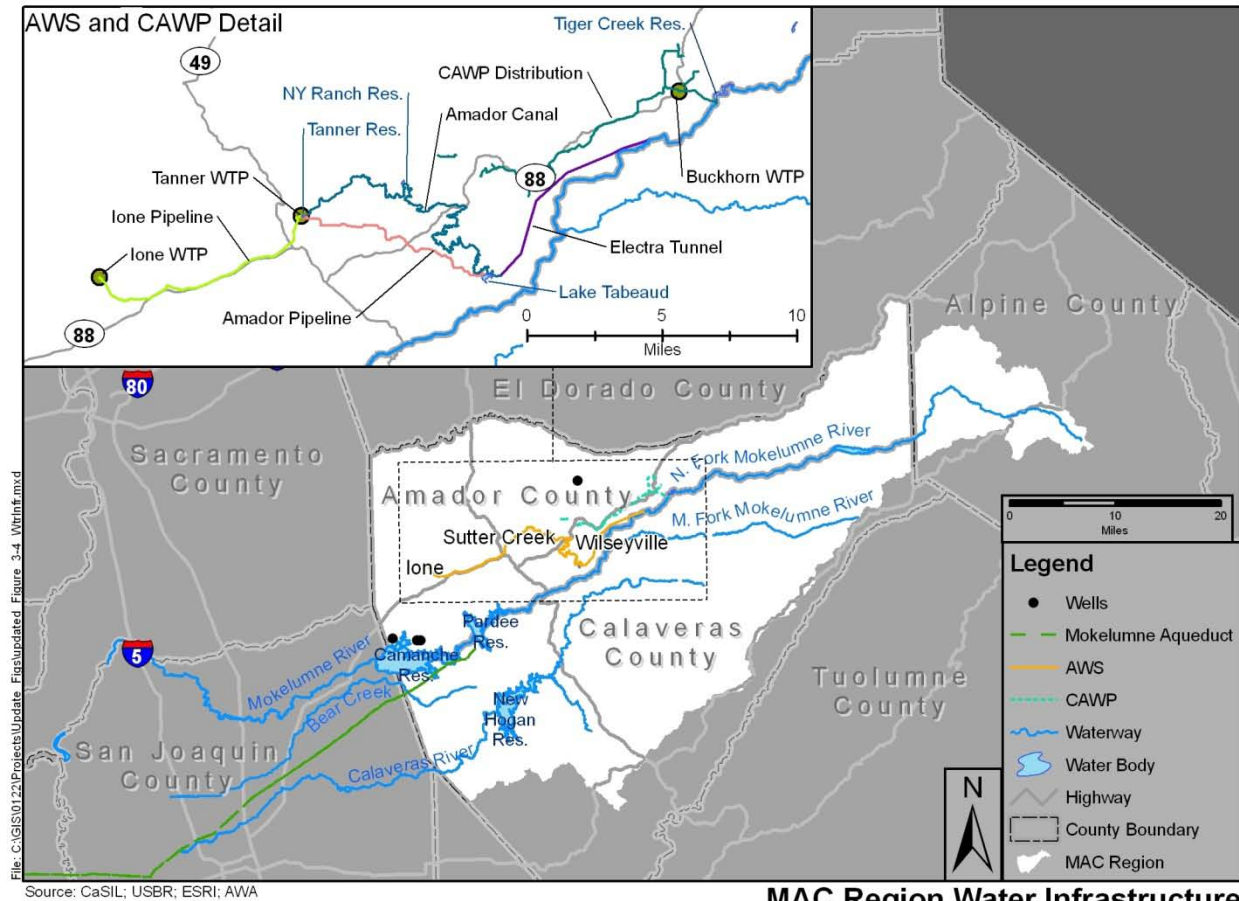
Tanner Reservoir – Stores raw water transferred from Lake Tabeaud via the Amador Canal pipeline. The raw water is then transferred to the Ione Water Treatment Plant via the Ione Pipeline for treatment and subsequent distribution to customers in Ione.

Tiger Creek Reservoir (Forebay and Afterbay) – The combined capacity of the Forebay and Afterbay is approximately 4,000 AF. The Tiger Creek reservoirs are used by Pacific Gas and Electric Company for power generation. AWA currently uses water stored in the Tiger Creek Afterbay for water supply. Water is pumped from the afterbay to Buckhorn Water Treatment Plant where it is treated and ready for use by the customers of Pine Grove, Pine Acres, Sunset Heights, Fairway Pines, Jackson Pines, Pioneer, Gayla Manor, Ranch House Estates, Pine Park East, Toma Lane, Sierra Highlands, Silver Lake Pines, Ridgeway Pines, Rabb Park, and Mace Meadows. Water from the afterbay also gravity feeds to the PG&E Tiger Creek Powerhouse treatment plant which serves the PG&E Conference Center.

Electra Run - This small, scenic canyon on the Upper Mokelumne River upstream of Pardee Reservoir and Highway 49 is a popular whitewater run. Located below Pacific Gas & Electric's Electra powerhouse, this narrow, 1,000-foot-deep, wooded canyon is also a favorite place for other recreational activities such as fishing and picnicking.

Mokelumne River Fish Hatchery- The Mokelumne River Fish Hatchery is owned by EBMUD and operated by the California Department of Fish and Game. The fish hatchery raises and releases anadromous fish on the Mokelumne River, in addition to obtaining and maintaining data regarding the condition of fish stock in the river.

West Point/Wilseyville System – Sources of water for the West Point and Wilseyville water system are Bear Creek and the Middle Fork of the Mokelumne River. CCWD has water rights for a year-round diversion of 4 cubic feet per second (cfs) and 150 AF of storage rights on Bear Creek for a total potential supply of 1,980 AF.



**Figure 3: MAC Region Water Infrastructure**

## Ecological and Environmental Resources

The MAC IRWMP region is a largely natural area with much of it designated as rural or open space. There is an abundance of water features in the form of rivers, creeks, ponds, lakes, and reservoirs. As such, the region provides a great deal of varied habitat for numerous species. The Upper Mokelumne River has been designated as a scenic waterway.

There are a number of special status biological species in the MAC IRWMP region. Table 4 summarizes the species that are listed in the 08/06 California Natural Diversity Database designated as “Threatened” or “Endangered”. Additionally, there are several “Special” animal and plant species in the MAC region that have been designated as such by either the California Department of Fish and Game or the California Native Plant Society due to declining population levels, limited ranges and/or continuing threats that make them vulnerable to extinction.



**Table 4: Special-Status Species Potentially within the MAC IRWMP Region**

<b>Species Common Name</b>	<b>State Status</b>	<b>Federal Status</b>
Bald Eagle	Endangered	Threatened
Boggs Lake Hedge-hyssop	Endangered	None
California Red-legged Frog	None	Threatened
California Tiger Salamander	None	Threatened
California Wolverine	Threatened	None
Delta Button-celery	Endangered	None
Giant Garter Snake	Threatened	Threatened
Ione Buckwheat	Endangered	Endangered
Ione Manzanita	None	Threatened
Irish Hill Buckwheat	Endangered	Endangered
Lahontan Cutthroat Trout	None	Threatened
Mountain Yellow-legged Frog	None	Endangered
Palmate-bracted Bird's-beak	Endangered	Endangered
Succulent Owl's-clover	Endangered	Threatened
Swainson's Hawk	Threatened	None
Calley Elderberry Longhorn Beetle	None	Threatened
Vernal Pool Fairy Shrimp	None	Threatened
Vernal Pool Tadpole Shrimp	None	Endangered

Source: California Natural Diversity Database 08/06

In addition to these special-status species, the MAC region is home to a wide variety of plant and animal life in many different environments, including riparian, wetland, forest, and alpine. Wildlife in the area includes noteworthy rainbow and brown trout fisheries, black bear and deer populations, furbearers, 119 different bird species - including peregrine falcons, cliff swallows, spotted owls, and many more, and a vast array of amphibians and reptiles-including foothill yellow-legged frogs, western fence lizards, Gilbert skink, western rattlesnake, and Pacific treefrog.

### Political and Socioeconomic Composition

The MAC IRWMP region contains numerous internal boundaries that are generally associated with counties, cities, and special districts. The various boundaries delineate jurisdiction and responsibility for land use planning and various municipal services.

#### Political Jurisdictions

As previously noted, the MAC IRWM planning region is wholly contained within the boundaries of Amador, Calaveras and Alpine Counties. The region is sparsely inhabited and contains just six incorporated areas. The total combined population of the three counties is 85,292. Individual county populations are shown in Table 5. (Source: California Department of Finance estimates as of January 1, 2008).

**Table 5: MAC Region County Populations**

<b>MAC Region County Populations</b>			
	Alpine County	Amador County	Calaveras County
Number of inhabitants	1,222	37,943	46,127

The boards of supervisors for these three counties have responsibility for overseeing a variety of services to county residents, primarily in unincorporated areas but in some cases in cities as well. Such countywide services include voter registration, health and welfare programs, court and law enforcement operations, jail facilities, the recording of official documents, tax assessment and collection, and social services. The supervisors are also responsible for providing some municipal-type services for residents of incorporated areas. These include planning, zoning and land-use regulation, street maintenance, and in some cases sewage disposal, water, parks and recreational facilities and other municipal services, although these needs are frequently met by special districts as discussed below.

The MAC Region also contains five incorporated cities, all of which are located in Amador County; Amador City (pop 208); Ione (pop 7,416), Jackson (4,319), Plymouth (1,033) and Sutter Creek (pop 2,902). Although there is one incorporated city within Calaveras County (Angels Camp), this city is outside the MAC region. Alpine County has no incorporated areas. These city governments are responsible for providing services which directly affect the lives of their residents. To varying degrees, they provide fire and police protection, construct and maintain streets, provide facilities for sewage and storm drainage, and other community services. Additionally, each of the cities prepares city land use plans and administers planning and zoning codes.

As described above, water or wastewater services may also be served by a special district rather than municipal services. AWA, CCWD, CPUD, EBMUD, JVID and ARSA are six such districts within the MAC IRWM planning region. There are also two smaller special districts located within the Calaveras County portion of the IRWMP region: Wallace Community Service District, which provides domestic water and wastewater services in Wallace Lake Estates and the surrounding areas, and Valley Springs Public Utility District, which provides groundwater supplies and wastewater management services in the town of Valley Springs. The special districts within the MAC region that provide water-related services are shown in Table 6.

**Table 6: MAC Region Water-Related Special Districts**

<b>County</b>	<b>Special Districts</b>
Alpine	Alpine County Water Agency
Amador	Amador Water Agency Jackson Valley Irrigation District East Bay Municipal Utility District
Calaveras	Calaveras County Water District Calaveras Public Utility District East Bay Municipal Utility District Mokelumne Hill Sanitary District Wallace Community Services District Valley Springs Public Utility District

In addition to these water and wastewater districts, special districts of importance include those agencies that have the authority to manage water resources within their region. In the IRWM planning region, PG&E is authorized to manage river flows for the purpose of hydroelectric power generation, and the counties and cities share the responsibility to manage water flows in the region for the purpose of addressing flood control and drainage issues, each in their respective jurisdictions. Such responsibilities include flood prevention, flood control project planning, drainage services, and maintenance and operations of existing flood control and drainage infrastructure.

Finally, a number of federal and state agencies influence, to some degree, water resource decisions within the MAC region. Which agency (or agencies) and the extent of its (or their) influence depends on the nature of the water resource matter being considered. Those agencies which would typically be expected to have input on water-related projects and programs in the MAC region are listed in Table 7.

**Table 7: Federal and State Agencies with MAC Region Jurisdictions**

<b>Federal Agencies</b>	<b>State Agencies</b>
U.S. Forest Service	Department of Water Resources
Bureau of Land Management	State Water Resources Control Board
Environmental Protection Agency	Department of Fish and Game
U.S. Army Corps of Engineers	Department of Public Health
U.S. Fish and Wildlife Service	Regional Water Quality Control Board
Federal Energy Regulatory Commission	Department of Parks and Recreation
	Department of Transportation

## Socioeconomic Composition

Development in the MAC Region, both urban and rural, is clustered around the major cities and highways. Agriculture, grazing, and open spaces dominate land uses and represent a relatively large portion of the total region land use. Other industries outside the urban setting include mining and timber harvesting where the majority of the land cover is forest, shrub and grassland. General land use trends in the region include significant development of rural and agricultural areas associated with sudden population increases in Plymouth and Sutter Creek (Amador County), Kirkwood and Bear Valley (Alpine County), and the Rancho Calaveras and La Contenta areas (Calaveras County). A second land use trend is a shift from grazing to viticulture and viticulture to residential development.

The MAC IRWM region is home to approximately 130,000 people. These people consist of a diverse population representing a number of different races. Table 8 summarizes the results of the 2000 Census racial data for the region. The same dataset revealed that while about 80% of the population lived in urban areas, 98% of the region is considered rural. The population density therefore is 2000 people per square mile (as an average for the entire region), but the rural areas have a population density of about 40 people per square mile. The sparseness of people is what makes this region valuable as a watershed and ideal for habitat since there are minimal urban impacts to the region's water features.

**Table 8: Racial Percentages in the MAC IRWMP Region**

<b>White</b>	<b>Hispanic</b>	<b>Asian</b>	<b>African American</b>	<b>American Indian</b>	<b>Islander</b>	<b>Multi-racial</b>
84.3%	8.9%	1.3%	2.6%	1.7%	0.1%	2.0%

Note: Table does not reflect San Joaquin County population statistics.

Source: California Department of Forestry and Fire Protection 2000 Census Block Group Data

The MAC Region also contains Disadvantaged Communities (DACs). Based on the 2000 U.S. Census for median household income, the cities of Jackson (Amador County) and Plymouth (Amador County) are DACs, as are the communities of Mokelumne Hill (Calaveras County), Rail Road Flat (Calaveras County), San Andreas (Calaveras County), and West Point (Calaveras County). AWA also performed a survey in 2005 of the Camanche region and identified the North Shore Lake Camanche Unit 6 & Recreation Areas area as a disadvantaged community as well. This information will be included in the IRWMP update. Additionally, the MAC IRWMP region also contains Amador City (Amador County) and Mountain Ranch (Calaveras County) that do not qualify as a "disadvantaged community" by the MHI indicator, but do have Median Family Incomes (MFIs) that are well below 80% of the state MFI. There were no disadvantaged communities in the portion of Alpine County within the MAC IRWM planning region during preparation of the 2006 MAC IRWM Plan.

Overall, the disadvantaged communities in the MAC Region were smaller than those in the State with a higher median age. This indicates that many of the households in the MAC IRWMP region are maintained by older persons, most likely retired and living on fixed incomes. Identified disadvantaged areas in the MAC Region will have to be reviewed and revised in the upcoming Plan update due to changes in economic status in the State of California. More recent data will be used for the DAC analysis, ideally 2010 U.S. Census data, depending on availability.

## Water Demand and Supplies

### Water Demands

Like many foothill communities, the cities within Amador County and unincorporated areas are experiencing an urbanization trend. These additional people, and their corresponding need for potable water, along with water supply variability drive the need for AWA to secure additional supply and control over existing water supply. Additional urbanization and other land use shifts that could be introduced in the upcoming General Plan update would exacerbate this requirement for AWA.

The domestic sector of AWA's water service customers includes permanent and seasonal, single and multi-family residences. Since JVID is the primary supplier of agricultural water, AWA does not supply agricultural water except for incidental purposes. AWA also serves water or recycled water to several commercial/industrial consumers and golf courses. Table 9 summarizes the quantity of raw and treated water delivered to the Amador Water System (AWS), Central Amador Water Project (CAWP) retail, Lake Camanche Village and La Mel Heights customers, not including sales to individual communities or CAWP wholesales.

**Table 9: Past, Current and Projected Water Deliveries in the AWS, Lake Camanche Village and La Mel Heights, CAWP Retail, AFY<sup>a</sup>**

Water Type	2005	2010	2015	2020	2025	2030
CAWP (sales and retail)	6247 <sup>c</sup>	1286.1	1483.7	1711.6	1974.7	2278.1 <sup>b</sup>
AWS (including sales and raw water)		7562.5	8724.6	10065.1	11611.7	13396
La Mel Heights		25.4	26.4	26.4	26.4	26.4
Lake Camanche Village		298	343.8	396.7	457.6	527.9
Recycled water	807	807	807	807	807	807
Canal Transmission Losses	4543	0	0	0	0	0
<b>TOTAL</b>	<b>11597</b>	<b>9979</b>	<b>11385.5</b>	<b>13006.9</b>	<b>14877.4</b>	<b>17035.4</b>

Footnotes:

- Based on 2.9% population growth rate with Year 2004 as the base year.
- The Agency recognizes that this projection exceeds the projected surface water diversions that will be available for the CAWP system in 2030.
- Data not available to show similar distribution as for future demands.

Because of growth in the area and concerns with groundwater quality and basin overdraft, the Lake Camanche Village area is planning to phase out the use of groundwater. There are currently plans for a joint surface water treatment plant project between EBMUD, AWA, and CCWD to supply surface water to this area beginning by the year 2015. This project is still in the planning stages.

The La Mel Heights area has restricted growth potential and build out will be achieved in the next ten years. Therefore, the amount of groundwater projected to be pumped is held constant after the year 2012. To help meet the water demand in La Mel Heights, AWA completed the construction of a second well which has a yield of 40 to 80 AFY. Depending upon the operational safe yield of the new well once constructed, the original well may continue being used or, ideally, kept as a reliable back-up for the new well. Table 10 summarizes the amount of groundwater expected to be pumped through 2030.

**Table 10: Amount of Groundwater Projected to be Pumped, AFY**

Basin Name	2010	2015	2020	2025	2030
San Joaquin Valley Cosumnes Basin 5-22.16 <sup>a</sup> (Lake Camanche Village wells)	298.0	0	0	0	0
Unclassified Groundwater Aquifer (La Mel Heights well) <sup>b</sup>	25.4	26.4	26.4	26.4	26.4
% of AWA's Total Supply	1.8%	0.2%	0.1%	0.1%	0.1%

Footnotes:

- a. Groundwater use is assumed to be discontinued in Lake Camanche area by 2015.
- b. La Mel Heights area assumed to be built out by 2012.

Overall, domestic water demand for the AWA service area is assumed to increase at the same rate as the county population growth rate. The high county growth rate is expected to average 2.9 percent annually according to Amador County's General Plan Housing Element. This growth rate is conservative and allows the Agency to plan for highest reasonable demand projections. The following tables – Table 11 and Table 12 - describe current and projected maximum available water supplies and demand for AWA.

**Table 11: AWA - Past, Current, & Future Water Supplies, AFY**

Water Supply Sources	2005	2010	2015	2020	2025	2030
Supplier produced groundwater <sup>a</sup>	281.3	323.5	26.4	26.4	26.4	26.4
Supplier surface diversions <sup>b</sup>	16150	17200	17543.8	17596.7	17657.6	17727.9
Recycled water <sup>c</sup>	807	807	807	807	807	807
<i>TOTAL</i> <sup>d</sup>	17238	18331	18377	18430	18491	18561

Footnotes:

Source: Amador Water Agency *Urban Water Management Plan 2005*.

- a. After 2015, only La Mel Heights area will be supplied with groundwater.
- b. After 2015, Lake Camanche Village will be supplied with surface water.
- c. Recycled water is not supplied by the Agency but is used in the Agency's service area. Future supply does not include several potential uses that are currently being investigated.
- d. Total does not reflect amount of water incidentally transferred out of supply to EBMUD.

**Table 12: AWA - Future Water Demand<sup>a</sup>, AFY**

<b>Demand</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
CAWP (sales and retail)	1286.1	1483.7	1711.6	1974.7	2278.1 <sup>b</sup>
AWS (sales and raw water)	7562.5	8724.6	10065.1	11611.7	13396.0
La Mel Heights	25.4	26.4	26.4	26.4	26.4
Lake Camanche Village	298.0	343.8	396.7	457.6	527.9
Recycled Water	807.0	807.0	807.0	807.0	807.0
Canal Transmission Losses	0 <sup>c</sup>	0	0	0	0
<b>TOTAL</b>	<b>9979.0</b>	<b>11386</b>	<b>13007</b>	<b>14877</b>	<b>17036</b>

Footnotes:

- a. Based on 2.9% population growth rate with Year 2004 as base year.
- b. The Agency recognizes that this projection exceeds the existing surface water rights.
- c. Due to replacement of the Amador Canal with the Amador Transmission Pipeline.

Comparing Table 11 and Table 12 highlights the decreased future margin of safety that AWA is currently able to provide its future customers. Projects within the IRWMP will help to increase that margin to better accommodate current and future water demands. In general, however, these numbers will need to be revised in the IRWM Plan update in order to be reflective of current area demands.

Similar to Amador County, Calaveras County is experiencing growth from increased residential development with a population projection of 57,532 by 2010, according to the Calaveras County General Plan. Calaveras County is initiating a comprehensive update to its General Plan. This update may significantly increase population figures due to recent land use trends. As population increases, so will the need for public water. In addition to the population growth, Calaveras County boundaries overlap three separate watersheds. Only the Calaveras River watershed is currently included in the MAC region. There are aggressively growing water systems outside of the current southern boundary of the region that could be included in a future regional definition. This section of the IRWM Plan will require updating with quantity and demand for these systems.

CCWD is the primary water service provider to Calaveras County, and in that capacity is participating in the IRWM planning process with the goal of developing its ability to efficiently use supplies among all of its service areas, and likewise with the goal of developing its ability to conjunctively use its surface and groundwater supplies. The projects anticipated under the IRWMP would protect and promote the health and welfare of Calaveras County residents by improving CCWD's ability to protect against localized drought, regulatory uncertainty, infrastructure limitations and other localized system issues.

CCWD provides water service to over 12,000 municipal and residential/commercial customers through five independent water systems located throughout the County. These service areas are geographically distinct and do not currently interact or connect with one another. In the past, decisions were made to keep the water systems local. Due to recent trends in aggressive growth, regional systems have become more attractive to take advantage of economies of scale. However, since the water systems are still local, there is no redundancy if the water supply for any particular system is not available. The regional projects proposed in the 2006 IRWM Plan were selected to help connect the water systems and create a water supply safety net; these projects will have to be revisited in the Plan update in order to ensure that they provide the services needed to meet local demands in a reliable fashion.



CCWD service areas are primarily domestic and light commercial, with no major industry or large agricultural demands. Most of Calaveras County is rural with many small communities, some of which on the western border are rapidly urbanizing. The annual growth rate is 2.7% (between 2001 and 2009) according to the Calaveras County Housing Element of their General Plan though this number is very sensitive to construction and is being constantly updated. Demand is expected to increase at the same rate as projected population growth.

Surface water is the sole source of supply for the five systems of CCWD, although three of the systems incorporate recycled water to irrigate golf courses. CCWD is looking to extend its recycled water use to additional agricultural acreages and public activities where water is unavailable. Groundwater is not a reliable source in much of the County at present because of the small yields of the fractured rock system in the foothills. There is an approximately 30,000 acre alluvial area within the San Joaquin groundwater basin, located in the Camanche / Valley Springs region in the northwest corner of Calaveras County (DWR Bulletin 118). CCWD has adopted a groundwater management plan which includes efforts to protect water supply reliability. CCWD's current and future water supplies for the two water systems in the MAC region are included in Table 13.

**Table 13: CCWD Past, Current, and Future Water Supplies, Thousand AFY**

System	2005	2010	2015	2020	2025
<b>Jenny Lind<sup>a</sup></b>	<b>8 – 32</b>	<b>8 – 32</b>	<b>8 – 32</b>	<b>8 – 32</b>	<b>8 – 32</b>
<b>West Point/Wilseyville<sup>b</sup></b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>	<b>2.9</b>

Footnotes:

- a. Watershed yield and water availability is highly variable due to the nature of a rain driven watershed and allocation agreements with Stockton East Water District and the Bureau of Reclamation.
- b. Bear Creek direct diversion right is 4 cfs for West Point.

Table 14 summarizes the currently-projected demand for CCWD's Jenny Lind and West Point/Wilseyville systems through the year 2025.

**Table 14: CCWD Past, Current, and Projected Total Water Use per Year, AFY**

System	2005	2010	2015	2020	2025
<b>Jenny Lind</b>	<b>2,900</b>	<b>5,700</b>	<b>6,100</b>	<b>6,600</b>	<b>7,000</b>
<b>West Point/Wilseyville</b>	<b>400</b>	<b>430</b>	<b>450</b>	<b>470</b>	<b>490</b>

Source: Current (as of printing) estimates for connections and water demand. These values are sensitive to development within the region and are subject to change.



Combined with projected growth and potential environmental demands CCWD is required to examine cost effective ways to maximize supply through increased storage to provide a safety net.

**Table 15: Total CCWD Past, Current, and Projected Supply and Demand, TAFY**

	2005	2010	2015	2020	2025
<b>Jenny Lind System</b>					
<b>Supply Totals</b>	8 – 32	8 – 32	8 – 32	8 – 32	8 – 32
<b>Demand Totals</b> a	2.9	5.7	6.1	6.6	7.0
<b>Difference</b>	5.1 – 29.1	2.3 – 26.3	1.9 – 25.9	1.4 – 25.4	1.0 – 25.0
<b>West Point / Wilseyville System</b>					
<b>Supply Totals</b>	2.9	2.9	2.9	2.9	2.9
<b>Demand Totals</b> a	.4	.4	.5	.5	.5
<b>Difference</b>	2.5	2.5	2.4	2.4	2.4

Footnotes:

- a. Based on current (as of printing) estimates for connections and water demand. These values are sensitive to development within the region and are subject to change.

Table 15 summarizes the supply, demand, and net supply for the two CCWD systems through the year 2025. The table shows that CCWD's water supplies can meet the demand for existing 20-year projections for the two water systems within the region. However, the variability in the supply and dependence on local, aging infrastructure cause CCWD to plan for additional water supply, system redundancy, and upgraded infrastructure to avoid water shortages.

The Calaveras Public Utility District (CPUD) also provides water supplies in Calaveras County. CPUD obtains its water at a diversion dam and pump station near the confluence of the Licking and South Forks of the Mokelumne River. Water is pumped to Jeff Davis Reservoir and gravity fed to a treatment plant, where it is then fed to storage tanks in Rail Road Flat, Mokelumne Hill, Paloma, and San Andreas. They also derive a small amount of agricultural water from the Calaveras River. The district's boundaries cover 21,543 acres, covering areas within and around the communities of Mokelumne Hill and San Andreas. CPUD's Sphere of Influence (SOI) is L-shaped, covering an area of approximately 64,553 acres. In 2001, CPUD's water sales were 962 AF, approximately 9% of its water rights. CPUD has 1,720 customers with 82% being single-family residential customers, 6% multiple-family residential, 12% commercial and less than 1% agricultural.

CPUD's SOI could expand to encompass a total of 179,464 acres. The areas proposed for inclusion in the SOI currently rely on groundwater sources, in which availability and quality vary dramatically. The need for water in the proposed CPUD SOI depends on multiple factors including: continued growth in the area, density of new development, desire to have high quality water, need for fire protection, and availability of grants and loans to undertake expansion of the delivery system itself.

According to the County Water Master Plan, by 2010, future water needs supplied by CPUD are projected to be between 2,698 and 3,587 AFY. By 2040, water demand is projected to be between 4,335 AF and 5,898 AF annually. CPUD's water rights from the Mokelumne River amount to 10,950

AFY, so the supply should meet future water projections. The supply will be adequate until 2040 if demand follows the slower growth curve and until 2025 for the high demand curve.

Finally, Alpine County has a relatively slow steady population growth. The county population in 2003 was 1,223 people and by 2008, population is expected to increase 3.7% to 1268 people. Population is expected to grow faster in Bear Valley, Kirkwood, Markleeville, and Woodfords. Limited availability of water and sewer services can affect affordable housing and development in these areas, but Bear Valley, Kirkwood, and Markleeville have central water and sewer services. Most areas of the county are served by on-site well and septic systems.

In addition to local water demands, East Bay Municipal Utilities District (EBMUD) is the primary extra-regional user of Mokelumne River water. On an average annual basis, approximately 90 percent of the water used by EBMUD comes from the Mokelumne River watershed. EBMUD has water rights that allows for delivery of up to a maximum of 325 million gallons per day (MGD) from the Mokelumne River, subject to the availability of Mokelumne River runoff and senior water rights of other users. EBMUD's position in the hierarchy of Mokelumne water users is determined by a variety of agreements between Mokelumne water rights holders, the appropriative water rights permits and licenses which have been issued by the State, pre-1914 rights, and riparian rights.

EBMUD's Mokelumne River supply facilities include Pardee Dam and Reservoir, located near Valley Springs, and Camanche Dam and Reservoir, located approximately 10 miles downstream. EBMUD diverts its water supply at Pardee Reservoir, moving stored water into the Pardee Tunnel, Mokelumne Aqueducts, and Lafayette Aqueducts and on to its primary users in the East Bay portion of the San Francisco Bay area.

### Water Supplies

The MAC IRWMP regional water supply is dominated by the Mokelumne and Calaveras Rivers. In Amador County, only 2% of the domestic or treated water supply is from groundwater and 98% of the total supply is from the Mokelumne River. Calaveras County derives most of its water supplies from surface water and almost none from groundwater sources as does the portion of Alpine County located with the MAC IRWMP region.

The winter snow pack in the Sierra Nevada Mountains to the east, serves as the primary source of water through the year for the Mokelumne River. There are four service areas in Amador County that "take" water from the Mokelumne. The larger two of the four, the Amador Water System and the Central Amador Water Project, have yearly allotments of 15,000 acre-feet (AF) and 1,150 AF (with a possibility of expanding to 2,200 AF), respectively. Currently, only 12,000 AF and 1,066 AF per year are used, respectively. The remaining two smaller service areas, Lake Camanche Area and La Mel Heights, use groundwater. JVID also has water rights to 3,800 AF per year from Pardee Reservoir for agricultural irrigation and CPUD pumps 920 AF per year from the South Fork of the Mokelumne River. EBMUD has water rights and facilities to divert 325 MGD (approximately 364,072 AFY from the Mokelumne River). CCWD uses Bear Creek water (a tributary of the Mokelumne River) as a primary source of water. The Mokelumne River serves as a backup source for the West Point, Wilseyville, and Bummerville water systems.

Communities in Calaveras County within the IRWM planning region also rely heavily on the Calaveras River as a source of water. Unlike the Mokelumne River, the Calaveras River depends almost totally on rainfall for its flows. River flows are controlled by New Hogan Dam and Reservoir, which is operated by Stockton East Water District (SEWD) and the U.S. Army Corps of Engineers.

Both SEWD and CCWD have rights to the yield from New Hogan, with SEWD's take subject to reductions based on CCWD's future demands. CCWD, for the West Point/Wilseyville and Jenny Lind systems, currently uses approximately 3,300 AFY and currently estimates that it will need up to 7,500 AFY by 2025.

The Mokelumne River provides high quality source water for most of the year. According to the Amador Urban Water Management Plan, the water becomes somewhat turbid during storm events. Additionally, there are some potential water quality issues at specific locations in the IRWMP region. Table 16 summarizes the impaired water bodies within the IRWMP region listed on the State Water Resources Control Board 303(d) list.

**Table 16: Impaired Water Bodies within the MAC IRWMP region**

<b>Water Body</b>	<b>Pollutant</b>	<b>TMDL Priority</b>	<b>Estimated Size Affected</b>
Bear Creek	Mercury	Medium	15 miles
Lower Bear Reservoir	Diazinon	Medium	21 miles
Upper Bear Reservoir	Mercury	Medium	10 miles
Lower Calaveras River	Diazinon Organic Enrichment Pathogens	Low Low Low	5.8 miles
Camanche Reservoir	Copper Zinc	Low Low	7,389 acres
Five Mile Slough (Alexandria Place to Fourteen Mile Slough)	Chloropyrifos Diazinon Organic Enrichment Pathogens	Medium Medium Low Low	1.6 miles
Lower Mokelumne River	Copper Zinc	Low Low	29 miles*
Mosher Slough (upstream of I-5)	Pathogens	Low	3.5 miles

\* Not all 29 miles are necessarily within the study area

Source: 2002 CWA Section 303(d) List of Water Quality Limited Segment, Region 5.

Flooding is a concern for many areas within the MAC IRWM planning region. Many cities are included in 100-year floodplains (of both the Mokelumne River and its tributaries), including Sutter Creek, Jackson, Ione, Lodi, Mokelumne Hill. In some cases, like in the City of Plymouth, flooding is due to an inadequate storm drainage system, unable to handle heavy storms during winter and spring seasons. The Calaveras County General Plan discusses three basic types of potential flood hazards: stream-side overbank flows, areas of flat terrain with slow surface drainage, and inundation due to structural dam failure. Flooding can occur from heavy rainfall, rapid snow melt, saturated soils, or a combination of these conditions. Also, increasing development leads to an increase in impervious surface areas and a decrease in natural vegetative cover, which reduces the detention and attenuation characteristics of the overland areas. Documented flooding in the past has caused the following general damages and impacts to areas within the region:

- **Property Damage:** Extensive water damage to building contents.
- **Structural Damage:** Structural damage to residential and commercial buildings, as well as sewer system pipes/infrastructure.
- **Business/Economic Impact:** Some businesses must close for a period of time after flooding.
- **Road/School/Other Closures:** Bridges routinely close during high-water periods and floods.

FEMA funds have been available after floods in the past to assist with recovery.

Groundwater quantity and quality in the MAC IRWMP region varies considerably from well site to well site due to the small and unpredictable yields of the fractured rock system that typifies the foothill geology. Groundwater accounts for approximately 2 percent of AWA's total water supplies. Outside of the San Joaquin area, it is only used in the communities of La Mel Heights and Lake Camanche Village at a total rate of approximately 200 AFY.

Wells serving the Lake Camanche Village area of Amador County are located within the Cosumnes Subbasin portion of the San Joaquin Valley Groundwater Basin. The Cosumnes Subbasin is approximately 439 square miles in size, and is bounded on the north and west by the Cosumnes River, on the east by the bedrock of the Sierra Nevada Mountains, and on the south by the Mokelumne River. The groundwater level has paralleled the available surface water supply over the past 25 years. Table 17 summarizes the rise and fall of groundwater levels.

**Table 17: Historic Groundwater Levels in Cosumnes Subbasin**

<b>Time Period</b>	<b>Change in Level</b>	<b>Change from Reference Level<sup>a</sup></b>
Mid-1960s	0	0
Mid-1960s - 1980	-20 to -30 feet	-20 to -30 feet
1980-1986	5 to 10 feet	-10 to -25 feet
1987-1992	-10 to -15 feet	-20 to -40 feet
1993-2000	15 to 20 feet	-5 to -20

Footnotes:

a. Reference level is taken to be the groundwater level during the mid-1960s.

Source: California's Groundwater Bulletin 118 Updated 2/04

As can be seen in the table, the groundwater levels in 2000 were approximately the same or slightly higher than those in the mid-1980s. The groundwater storage capacity is estimated to be about 6,000,000 acre-feet (AF) with an average specific yield of 7.4%. Basin inflows are estimated to be about 269,500 AFY. Water leaves the subbasin through subsurface flow (144,600 AFY), urban extraction (35,000 AFY), and agricultural extraction (94,200 AFY). Based on this water balance, the subbasin is in overdraft by about 4,300 AFY (DWR, 2006b)

Groundwater does not account for any of CCWD's total water supply. CCWD adopted a Groundwater Management Plan in 2001 and updated it in 2005, according to Senate Bill 1938. There is one well west of the Jenny Lind system in the Camanche/Valley Springs Area but it is not operated. Located in the northwestern portion of Calaveras County, the Camanche/Valley Springs area is part of the Eastern San Joaquin Subbasin (DWR, 2006a), which is identified by the California Department of Water Resources Bulletin 118 as being in the San Joaquin Valley Groundwater Basin. The Eastern San Joaquin Subbasin is approximately 1,105 square miles in size and is bounded on the south, southwest,

and west by the Modesto, Delta-Mendota and Tracy Subbasins, respectively, and on the northwest and north by the Solano, South American, and Cosumnes Subbasins. The Solano and South American Subbasins are located in the Sacramento Valley Groundwater Basin. The Eastern San Joaquin Subbasin is drained by the San Joaquin, Stanislaus, Calaveras and Mokelumne Rivers. Based on a 1990 study by the U.S. Bureau of Reclamation, annual groundwater extractions total about 731,000 AFY, which exceeds the estimated safe yield of 618,000 AFY, hence a state of overdraft was created. The Eastern San Joaquin Valley Subbasin is currently being managed under an AB3030 Groundwater Management Plan (GMP), prepared by the Northeastern San Joaquin County Groundwater Banking Authority. The Camanche/Valley Springs area is managed under a separate GMP, adopted by CCWD in 2001, for investigation of opportunities to improve management of groundwater resources in western Calaveras County.

Imported water plays a limited role in the MAC Region. CCWD does not import water from outside their basin, but they have purchased water from CPUD in the past. During summer and fall months, water stored in Schaad's Reservoir from the Middle Fork of the Mokelumne River is supplied to the West Point area if the Bear Creek supply is inadequate. An agreement between CCWD and CPUD allows the supply of up to 100 AF annually.

Finally, several of the Region's members currently use recycled water to meet part of their water demands. The City of Ione operates a tertiary treatment facility, Castle Oaks Wastewater Reclamation Plant, which treats Amador Regional Sanitation Authority (ARSA) effluent from the City of Sutter Creek plant and produces a Title 22 effluent suitable for unrestricted reuse. The treated tertiary effluent is currently used to irrigate the Castle Oaks Golf Course. Additionally, a portion of the treated secondary effluent from the Sutter Creek Wastewater Treatment Plant to the ARSA outfall is delivered to the Bowers and Hoskins Ranches to irrigate land used for cattle grazing. The acreage of each irrigation plot is available but the amount of water delivered is unknown. The approximate amount of water delivered to each ranch was calculated using an irrigated pasture application rate of 2.5 AFY per acre of pasture. Table 18 summarizes the current recycled water uses in the ARSA service area. The recycled water use at these sites is not projected to increase due to the limited acreage of these sites.

**Table 18: Recycled Water Uses in the ARSA Service Area, AFY**

User Type	Treatment Level	2005	2010	2015	2020	2025	2030
Landscape (Castle Oaks Golf Course) <sup>a</sup>	Tertiary	557	557	557	557	557	557
Bowers Ranch Irrigation <sup>b</sup>	Secondary	100	100	100	100	100	100
Hoskins Ranch Irrigation <sup>c</sup>	Secondary	150	150	150	150	150	150
Landscape (Mace Meadows Golf Course)	WTP Backwash <sup>d</sup>	56	56	56	56	56	56
	<b>TOTAL</b>	<b>863</b>	<b>863</b>	<b>863</b>	<b>863</b>	<b>863</b>	<b>863</b>

Footnotes:

- Based on Year 2004 Castle Oaks Reclamation Plant effluent of 557 AFY.
- Approximate delivery. Based on 40 acres of cow pasture and an Irrigated Pasture application rate of 2.5 AFY/acre.
- Approximate delivery. Based on 60 acres of cow pasture and an Irrigated Pasture application rate of 2.5 AFY/acre.
- Backwash water from Buckhorn Water Treatment Plant based on Year 2005 and 2006 average annual flows.

## IRWM Plan

The 2006 MAC IRWMP was developed as a fully-integrated plan for the MAC Region. The Plan was adopted by the various RWMG members throughout November and December of 2006, with adoption by AWA (the RWMG lead) on December 14, 2006.

Since 2006, there have been significant changes to the MAC Region boundaries (modified to remove the overlap with the East San Joaquin IRWM region), Regional Water Management Group (RWMG). (assumption of the RWMG role by UMRWA), and governance structure (formation of the regional Board Advisory Committee and Regional Participants Committee). Most of these changes were documented in the 2009 RAP application, but the IRWM Plan update will be required to redefine the region in its current state and to address changes to regional objectives and priorities as a result of its broadened stakeholder process, recent infrastructure construction, and changes in the State's economy. Furthermore, there are some standards, as documented in the August 2010 Prop 84 IRWMP Guidelines, which have not been addressed since completion of the existing Plan, so these items will need to be analyzed and developed as part of the IRWM Plan update.

## Public Process

### Background

In 2005, a group of water-related public agencies in Amador and Calaveras Counties signed a Memorandum of Understanding (MOU) committing to the preparation of the first MAC IRWMP. Signatories of the 2005 MOU included Amador Water Agency (AWA), East Bay Municipal Utility District (EBMUD), Calaveras County Water District (CCWD), Amador County, City of Jackson, City of Sutter Creek, City of Plymouth, and the Amador Regional Sanitation Authority (ARSA). This initial IRWMP, which was adopted in November and December 2006, was based on guidelines and standards associated with Proposition 50.

Subsequent to the 2006 Plan adoption, an expansion of interest in regional water resources planning in Amador and Calaveras County occurred, leading to an evolution of the MAC region planning process. Specifically, the UMRWA assumed the position of the RWMG, taking a leadership role for updating and administering the MAC Plan. In turn, the UMRWA Board of Directors established an IRWM planning program and provided funding to undertake the first phase of a multi-phase process to update the 2006 MAC Plan. In this recently completed first phase, three essential public and stakeholder participation elements were developed:

1. The Regional Participants Committee was established;
2. The *Community Outreach Plan* was developed; and
3. The *Regional Participants Governing Procedures Guidelines* were drafted.

### Community Outreach Plan

A primary element of the MAC regional planning process is community outreach. A *Community Outreach Plan* has been developed and endorsed by the Regional Participants Committee (described below). This plan is being implemented, and will continue to be implemented during the Plan Update to guide public involvement throughout the MAC regional planning process and facilitate relationship building by promoting the active participation of local stakeholders. The key outreach goal of the Outreach Plan is: "To ensure sufficient representation and active participation of community interests to achieve a technically and politically viable update to the existing Plan".



To achieve the outreach plan goal, a three-tiered approach to stakeholder participation and general community outreach has been established. These three tiers are described below.

**Tier One was the formation of a committee to represent the interests of stakeholders** within the MAC region. This Regional Participants Committee, or RPC, serves as the venue for bringing stakeholder interests to the MAC Plan update discussion table. It has a central and guiding role in the MAC IRWM planning process. RPC participants were solicited through letters sent to individuals and organizations with known stakeholder interests (e.g. participants in the drafting of the 2006 MAC IRWMP), by notices published in local papers, and during the October 2008 Community Meeting which targeted the general public (see Tier 2 discussion, below). A balanced and diverse representation of community stakeholder interests has been achieved, including special outreach efforts to secure the input of geographically distant Alpine County interests and DACs. Present members of the RPC include the agencies shown below.

**Table 19: Regional Participants Committee Members**

Sector	Agency/Organization
Special Districts	Amador Water Agency Calaveras County Water District Calaveras Public Utility District East Bay MUD Jackson Valley ID
Counties	Amador County
Community/Environmental Organizations	Alpine Watershed Group Amador Fly Fishers Foothill Conservancy Upper Mokelumne River Watershed Council
Industry	Pacific Gas and Electric Sierra Pacific Industries
Disadvantaged Communities	City of Jackson City of Plymouth Mokelumne Hill West Point
Interested Residents	Subdivision Project Manager Retired Public Works Director Aquatic Biologist
Federal Agencies	US Forest Service

**Tier Two ensures that the general public living within the MAC region has an opportunity to be involved in the project,** learn about project developments and provide input into RPC work products. Communication with the general public is accomplished through four methods:

1. Individual RPC member outreach to community members, coworkers, and professional associations
2. Local media to inform the general public of progress being made in developing the updated MAC Plan
3. A MAC Plan website
4. Community workshops. Community workshops are the primary format for informing the general public about MAC Plan Update activities and to solicit comments and answer questions on MAC Plan work products. Workshops will be held as key project work products are drafted. Community workshops are hosted at suitable facilities that are centrally located. The Senior Community Center and the Amador County Board of Supervisors chambers, both of which are located in Jackson, are often used for meetings of this nature and are likely locations for future meetings.

**Tier Three is designed to ensure that the interests of Disadvantaged Communities in the MAC region are represented** and accounted for in the MAC Plan update process. By soliciting and encouraging participation in the MAC Plan update process by individuals who understand the issues confronted by disadvantaged communities, we can help ensure that both the needs of low-income communities are considered and that those communities do not bear disproportionately high and adverse human health or environmental impacts. Objectives of Tier 3 include the following.

- Solicit involvement by individual representatives from DACs within the MAC region and encourage participation by those representatives as members of the RPC.
- For DACs which do not have designated community representatives on the RPC, encourage other RPC members to specifically advocate and represent the interests of those DACs which may lie within a RPC member's jurisdiction or area of special interest
- Inform representatives and residents of DACs via flyers and newspaper notices about opportunities to get involved with the MAC Plan update process and participate in development, integration, and prioritization of projects.

Disadvantaged Community representation on the RPC is shown in Table 20. DACs will be identified during the MAC Plan update using 2010 U.S. Census data. If additional DACs are identified, they will be solicited for representation on the RPC.



**Table 20: Disadvantaged Community Representation on RPC**

Disadvantaged Community	Supporting Agency	Public Representative	Secondary Agency
Jackson	City of Jackson	Mike Daly	Amador Water Agency
Plymouth	City of Plymouth	Dixon Flynn	Amador Water Agency
Mokelumne Hill	Mokelumne Hill Sanitation District	Phil McCartney	Calaveras County Water District
Rail Road Flat	TBD	---	Calaveras County Water District
San Andreas	Calaveras Public Utility District	David Graesch	Calaveras Public Utility District
West Point	TBD	---	Calaveras County Water District

### RPC Governing Procedures and Guidelines

In order to ensure that the RPC process runs smoothly and successfully, a set of governing procedures was established by the RPC. The key aspects of the *Governing Procedures Guidelines* follow.

- The goal of this planning process is to have RPC members engaged in discussion and reach consensus on MAC Plan content and recommendations. Straw votes may be taken from time to time to gauge the level of agreement on specific issues. Efforts should be made to accommodate the concerns of all parties.
- The RPC will serve as the MAC Plan's primary advisory body. In that capacity, the RPC is expected to provide advice, support and constructive criticism. Project staff will incorporate or otherwise reflect the comments and recommendations of the committee members into MAC Plan work products.
- With the RPC's consent, new committee members may be added to the RPC after the first meeting is held.
- Every member will check back with their respective organization or constituency and will keep them aware of the ongoing RPC process and actions. Input from senior staff and/or governing boards of the RPC members will be communicated back to the RPC at its next meeting. Any dissension from the respective organizations' decision-making bodies that could affect acceptance of RPC recommendations will be clearly communicated at each meeting so a solution can be sought.
- Outstanding issues or concerns of RPC members will be brought to the RPC first. Members will not communicate their concerns and issues outside of the committee without first bringing them to the RPC.
- Every member is responsible for communicating their position on issues under consideration. It is incumbent upon each member to state the interests of the organization or group they represent. Voicing these interests is essential to enable meaningful dialogue and full consideration of issues by the RPC. If a RPC member does not attend a RPC meeting or communicate their viewpoint on an issue, it is assumed that they agree with decisions and recommendations made by the RPC.

The decision-making process to be followed by RPC has been established by the committee itself. This process is described as follows;

- The RPC decision process has been established to have RPC members contribute their knowledge and opinions to the overall project. The decision-making goal is to have all RPC members agree on the item at hand, with no member objecting to a decision, action or recommendation. Members should use "can they live with it" as their standard.
- In any instance where all members don't agree on the decision or action at hand, then the person or persons who disagree must put forward a reasonable alternative. If, after due consideration, agreement on the matter at hand cannot be reached, the RPC will determine how to resolve the impasse.

## Public Access and Participation

Information regarding the MAC IRWM planning process is communicated to the general public through direct mailings, local media and a MAC Plan website. Direct mailings are facilitated by a community and stakeholder database. This database has been developed based on project databases created previously for UMWRA's Upper Mokelumne River Watershed Assessment and Planning Project and the 2006 MAC IRWMP. These two databases were initially combined into a single database for the MAC Plan Update, with more names subsequently added by agency staff and participants at the first public workshop, held in October 2008. This community database contains the names and key contact information for interested public and potential stakeholders, as well as media contacts. The community database primarily serves as a mailing list for direct mail pieces that are developed concerning the regional planning process. As new contacts are made, either through the RPC or community meetings or through other venues, the community database will be augmented.

Direct mailings to community members listed in the database are used as a means for announcing scheduled community workshops. These announcements describe the MAC Plan and its purpose, the subject matter of the scheduled workshop, and solicit public input on draft or completed work products.

The local media provide a credible and economic approach to achieving widespread dissemination of key project information. Studies show that information presented to the public through a third party, such as the media, is more readily believed by the public, as opposed to advertising or other methods of information coming directly from the source. Local newspapers, such as the Record Courier, Calaveras Enterprise, and the Amador Ledger Dispatch, are contacted and provided descriptions of upcoming workshops and related information for publication.

In an effort to continue to make all relevant information available to a vast breadth of stakeholders, a website has been developed for the MAC IRWM planning process. The website provides some information about the overall DWR IRWM planning program, and specifically the 2006 MAC IRWMP and update (e.g. who they can contact regarding interest in the process). Useful links to other websites are provided and documents may be downloaded. In addition to those interested in obtaining information from the website, there will be a link allowing viewers to leave anonymous comments and/or suggestions, thereby further contributing to the process.

## Objectives & Conflicts

The following list of water resource conflicts in the MAC region was compiled from two sources; (1) the MAC region stakeholder group, the RPC, which met in January 2009, and (2) through a facilitated discussion that identified a number of regional water resource conflicts and issues. Additional issues and conflicts were obtained from the Upper Mokelumne River Watershed Assessment and Planning Project (UMRWAPP) and are denoted below with that source identification. These potential conflicts and issues were organized under seven topic headings for presentation in the 2009 RAP application, and have been shown below in the same format.

### Land Use and Water Use Conflicts

- Amador County General Plan housing element will result in more development in areas with no water/wastewater infrastructure
- Supply and infrastructure not adequate to meet growth planned for in the general plans of Amador County and its cities
- Provision of infrastructure is problematic within dispersed, low density areas
- Watershed protection versus community economic needs
- Groundwater overdraft versus development approvals
- Groundwater quantity and quality is not adequate to accommodate growth
- Increased population in watersheds per the General Plans will increase presence and expedite the transport of contaminants to water bodies (UMRWAPP)

### Environmental Protection

- Obtaining Wild and Scenic River status versus preserving opportunity to develop additional surface water storage
- PG&E pumped storage project on North Fork versus preserving or restoring river natural systems
- Third party impacts from reuse and conservation (reduced return flows)
- Protecting and improving fish passage on lower Mokelumne and Calaveras Rivers versus river-sourced water supply development needs and opportunities
- Management of federal lands resulting in environmental impacts

### Water Quality Conflicts

- Promoting and improving water-related recreation opportunities versus recreational water quality impacts
- Groundwater overdraft in the Eastern San Joaquin Groundwater Basin contributing to deteriorating groundwater quality levels in the portion of the basin underlying Calaveras County
- Wastewater discharge water quality
- Failing septic system contaminant leakage to surface water and groundwater versus body contact recreation and drinking water (UMRWAPP)
- Wastewater treatment levels and technology versus environment and benefits
- Improper disposal of household wastes (UMRWAPP)

- Wastewater treatment plant overflows during high precipitation events (UMRWAPP)
- Inactive mines without restoration cause leaching of soils with high mineral content and surface runoff of contaminants to water bodies (UMRWAPP)
- Increased impervious surfaces exacerbates flooding which contributes contaminants to surface waters versus designing streets and compact development with techniques to reduce peak flows, minimize runoff, and remove contaminants during flow (UMRWAPP)

### **Supply Management**

- New water supply versus recycled water versus conservation of supplies
- Stormwater management and rights to use this water
- Climate change impacts
- Water rights concerns
- Supplies not matched to use (e.g., industrial users receiving potable supplies)
- White water recreation versus flat water recreation

### **Forest Management**

- Timber harvesting disturbance of vegetation and soils which contributes loadings to surface waters (UMRWAP)
- Roads and road maintenance practices contribute to erosion, peak runoff, and transport of contaminants in runoff to surface waters (UMRWAP)

### **Fire Management**

- Wildfires cause disturbance of vegetation and soils which contributes loadings to surface waters (UMRWAP)
- Fire response to protect landowner and water quality objectives versus managing naturally-occurring fires (UMRWAP)

### **Economic Impacts**

- Costs of projects and financing
- Aging existing water and wastewater infrastructure
- Drinking water regulations may not reflect realistic protection of human health (treatment levels too onerous)
- Local economic opportunities versus out of region resources

While these regional issues and conflicts do represent a more current picture of the regional water resources situation, ongoing changes to the region, both in the form of economics and statewide water management, it is still necessary to revisit these issues and conflicts in the upcoming IRWM Plan update. This process will continue to be developed through facilitated public discussions and the RPC.

## Regional Priorities

Regional priorities or goals for water resource management were developed and last documented in the 2006 IRWM Plan. These goals and objectives were originally developed through a series of workshops conducted to outline, develop and formalize the goals and to create measurable objectives to provide a basis for decision-making. Considered in the development of the regional priorities were identification of regional needs and issues, Statewide Priorities, and consideration of State Program Preferences. Based on these regional needs, issues and priorities, the following regional overall goals were developed:

### Overall Goals:

- Goal 1: Develop a comprehensive IRWMP for the Mokelumne/Amador/Calaveras area that incorporates regional water supply, water quality, flood control and environmental protection and enhancement objectives consistent with those of Proposition 50, Chapter 8 (Prop. 50 Chap. 8).
- Goal 2: Improve and maximize coordination of individual water district, agency, and city plans, programs, and projects for mutual benefit and optimal regional gain.
- Goal 3: Identify, develop, and implement collaborative plans, programs, and projects that may be beyond the scope or capability of a single entity, but which would be of mutual benefit if implemented among multiple parties.
- Goal 4: Facilitate regional water management efforts that include multiple water supply, water quality, flood control, and environmental protection and enhancement objectives.
- Goal 5: Foster coordination, collaboration, and communication between entities and interested stakeholders to achieve greater efficiencies, enhance public services, and build public support for vital projects,
- Goal 6: To realize regional water management objectives at the least cost through mutual cooperation, elimination of redundancy and enhanced competitiveness for State and Federal grant funding.

For these overall goals, several regional specific goals were identified, and measurable objectives established for each specific goal. The specific goals and objectives are discussed below.

### Water Supply Goal

The regional goal for water supply is *to improve regional water supply reliability, reduce dependence on imported water, promote water conservation, water reuse, and protect watershed communities from drought with a focus on interagency conjunctive use of regional water resources*. Measurable objectives established for this goal include:

1. Meeting 100% of urban and agricultural demand in wet to dry years, including the first year of water shortages.
2. Meeting 85% of urban and 75% of agricultural demands in second and subsequent years of water shortages.
3. Optimizing and sustaining the use of existing surface water entitlements from the Mokelumne and Calaveras Rivers.
4. Protecting existing water rights and county of origin protections.
5. Providing a variety of water supply sources to meet current demands.

6. Maximizing use of recycled water from wastewater treatment plant with an overall target reuse goal of 50% of plant effluent by 2020.
7. Optimizing the use of groundwater storage and conjunctive use options.
8. Implementing water conservation plans for both urban and agricultural uses.
9. Providing a variety of water supplies to support planned growth, anticipated increases in industrial and agricultural demand, and shifts in water supply availability resulting from climate changes.
10. Providing a reliable supply of water to meet alternative water uses such as fire suppression and municipal irrigation.

### Flood Protection Goal

The regional goal for flood protection is *to ensure flood protection strategies are developed and implemented through a collaborative and watershed-wide approach and are designed to maximize opportunities for comprehensive management of water resources*. Measurable objectives for this goal include:

1. Developing outlines of regional projects and plans necessary to protect existing infrastructure from flooding and erosion from the 100-year event.
2. Working with stakeholders to preserve existing flood attenuation by implementing land management strategies throughout the watershed.
3. Developing approaches for adaptive management to minimize maintenance requirements and protect quality and availability of water while preserving ecologic and stream functions, and enhancing when appropriate.
4. Providing community benefits beyond flood protection, such as public access, open space, recreation, agricultural preservation, and economic development.

### Water Quality Goal

The regional goal for water quality is *to protect and improve water quality for beneficial uses consistent with regional community interests and the RWQCB Basin Plan through planning and implementation in cooperation with local and state agencies and regional stakeholders*. Measurable objectives for this goal include:

1. Meeting or exceeding all applicable water quality regulatory standards.
2. Meeting or exceeding urban water quality targets established by stakeholders.
3. Delivering agricultural water to meet water quality guidelines established by stakeholders.
4. Meeting or exceeding recycled water quality targets established by stakeholders.
5. Aid in meeting Total Maximum Daily Loads established, or to be established, for the Mokelumne and Calaveras River watersheds.
6. Protecting surface waters from contamination and threat of contamination (including through SSOs and SSMPs).
7. Protecting groundwater basins from contamination and threat of contamination.
8. Managing existing land uses while preserving or enhancing environmental habitats.
9. Developing environmental water to meet water quality guidelines established by stakeholders.
10. Minimizing impacts from storm water through implementation of Best Management Practices or other detention projects.

11. Managing existing land uses for recycled water discharges and allowable water-based discharges.

### Environmental Protection and Enhancement Goal

The environmental protection and enhancement goal is *to work with the community and environmental stewards to preserve the environmental health and well-being of the Mokelumne and Calaveras River watersheds by identifying opportunities to assess, restore and enhance natural resources of streams and watershed when developing water supply, water quality, and flood protection strategies*. Measurable objectives for this goal include:

1. Identifying opportunities to assess, protect, enhance, and/or restore natural resources when developing water management strategies.
2. Minimizing adverse effects on biological and cultural resources, including riparian habitats, habitats supporting sensitive plant or animal species, and archaeological sites when implementing strategies and projects.
3. Identifying opportunities for open spaces, trails and parks along creeks and other recreational projects in the watershed to be incorporated with water supply, water quality, or flood protection projects.
4. Projecting elements should maintain and, to the extent practicable, enhance the local environment and contribute to the long-term sustainability of agricultural, commercial, industrial, and urban land uses and activity within the basin.
5. Identifying opportunities to protect, enhance, or restore habitat to support Mokelumne (including Dry Creek, Sutter Creek and Jackson Creek) and Calaveras River watersheds in conjunction with water supply, water quality, or flood protection projects.

### Regional Communication and Cooperation Goal

The regional communication and cooperation goal is *to develop a forum for regional communication, cooperation, and education, including models for partnerships and inter-basin cooperation, protocols for reducing inconsistencies in water management strategies between regional entities, and strategies for maintaining resource costs within the local socioeconomic environment*. The measurable objectives for this goal include:

1. Developing format for consensus decision-making by regional entities.
2. Creating prioritization strategy and protocols for integrated water management decision-making.
3. Fostering collaboration between regional entities to minimize and resolve potential conflicts.
4. Building relationships with State and Federal regulatory agencies and other water forums and agencies to facilitate permitting of water-related projects.
5. Opening and fostering lines of communications between regional and inter-regional entities to reduce inconsistencies in water management strategies and to maximize benefits from water-related projects.
6. Opening avenues of communication with general public and offer opportunities to provide feedback on the IRWM and water-related projects.
7. Identifying opportunities for public education about water supply, water quality, flood management, and environmental protection.
8. Maintaining water and wastewater rates to remain within the socioeconomic means of the community.



While the MAC Region has made progress towards achieving these goals, present day is a dynamic situation. As part of the IRWM Plan update, these regional goals and objectives will need to be reviewed and revised, as appropriate, to reflect the current situation in the Region in terms of water resources management. In doing so, the RPC and public workshops will be the primary venues for developing and vetting the regional priorities to be documented and utilized in the IRWM Plan update.

## Technical Analysis and Data Management

The following describes the technical analysis and data management processes as documented in the 2006 IRWM Plan. While the overarching governance has changed since the adoption of the 2006 IRWMP, these processes have not yet been revisited nor revised to reflect the current IRWMP regional structure.

### Technical Analysis

The 2006 MAC IRWMP consists of projects, programs, studies, and planning activities that local and regional planners found to be economical and technically feasible based on similar projects, pilot studies, technical analyses, benefit analyses, cost estimating, modeling and simulation efforts and data assessments.

Table 21 presents the economic and technical feasibility criteria used to evaluate each of the projects on a programmatic level for each planning objective.

**Table 21: Economic and Technical Feasibility Determination**

Primary Objective	Economic and Technical Feasibility Determination Criteria
Water Supply	Feasibility is defined in master planning documents using conventional technologies meeting defined levels of service (reliability) at costs commensurate with regional economic benefits.
Water Quality	Feasibility is defined using conventional technologies or via the demonstration of new technologies at unit production costs meeting unit cost or wastewater thresholds.
Water Recycling	Feasibility is defined similar to water supply reliability and includes meeting new water supply unit price targets.
Ecosystem Restoration	Feasibility is defined primarily through habitat management documents based in stakeholder processes, using conventional technologies, at prices per acre that are funded with public, private, and grant funding sources.
Conservation	Feasibility is defined similar to water supply reliability and includes unit price savings resulting from program implementation and cost-benefit ratios.
Stormwater & Flood Management	Stormwater management feasibility is defined through implementation of Best Management Practices implemented in compliance with NPDES permits. Flood management feasibility is defined through providing sufficient flood protection to justify local and federal benefit and costs ratios.
Other	Feasibility is defined by the MAC IRWMP PAC for projects not fitting the afore-mentioned criteria.

As each project documented in the IRWM Plan moved closer to design completion and implementation, technical and economic analyses were conducted to confirm project feasibility and to provide any necessary feedback to modify the project's plan to improve its likelihood of success.

## Data Management

Data collection and dissemination are integral to the IRWMP process. Without access to the data, the collaboration and savings realized through the integrated process will not be realized as fully and may result in duplication of work and excessive expenditures. As part of the design and implementation of projects discussed in the 2006 IRWM Plan, various forms of data were collected. These data included stream flows, surface water deliveries, groundwater elevations, groundwater pumping, precipitation, water demand, locations and sizes of water-related facilities, political and agency boundaries, land use, contaminant plume locations and extents, water quality data, locations of sensitive habitats and species, and hydrogeologic and hydrologic data. These data were collected from various federal, State, and local agencies, some of whom are shown in Table 22. Data were also collected from existing numerical models such as HEC models, H2ONet, and hydraulic and hydrologic models. As part of the data analysis, data gaps were also identified and projects and/or plans proposed to fill these needs. For example, the proposed Temperature Study seeks to monitor temperature fluctuations in the Mokelumne and Calaveras Rivers to determine what actions, if any, should be taken to improve conditions for fisheries in the rivers. Results of this study might also impact existing and future management strategies to further the benefits. Similarly, AWA's Leak Detection and Repair Program includes as an initial step the collection and analysis of distribution system water loss data which will be central to designing and implementing the most cost effective water loss reduction projects.

**Table 22: Sources of IRWMP Data**

<b>Federal</b>	<b>State</b>	<b>Local</b>
National Climate Data Center	California Irrigation Management Information System (CIMIS)	Amador County
National Resource Conservation District	DFG	Alpine County
Army Corps of Engineers	DHS	Calaveras County
Bureau of Reclamation	DWR	City Planning Departments
USFWS	RWQCB	Upper Mokelumne River Watershed Council
USGS	SWRCB	Northeastern San Joaquin Groundwater Banking Authority
NMFS	California Natural Diversity Database (CNDDB)	Mokelumne, Calaveras, and Cosumnes River Water Purveyors
AFRPA	CDPR	Stakeholders
EPA		
SRCC		
TNC		

Data requirements identified in the 2006 IRWM Plan include a variety of data types. Table 23 outlines the variety of data that may be required by priority project type. These data will include, at a minimum, any data relevant to surface water, groundwater, water quality, storm water, and ecosystem restoration.

**Table 23: Required Data for Priority Projects**

<b>Data Type</b>	<b>Water Supply</b>	<b>Recycled Water</b>	<b>Water Quality</b>	<b>Stormwater and Flood Management</b>	<b>Ecosystem Restoration</b>	<b>Groundwater Management</b>
Stream & River Flows	X		X		X	
Stream & River Water Quality	X	X	X	X	X	
Locations of Sensitive Habitats & Species			X		X	
Surface Water Deliveries	X		X			X
Groundwater Pumping	X		X			X
Hydrogeologic						X
Precipitation	X		X	X		X
Water Demand	X	X				X
Water Related Facilities	X	X	X	X		X
Political and Agency Boundaries	X	X	X	X	X	X
Land Use	X	X	X	X	X	X
Contaminant Plume Locations and Extents	X		X			X

Data dissemination has been conducted primarily via project-specific documentation and associated meetings, inter-agency collaboration on issues and projects of mutual interest, and at ongoing stakeholder/RPC and Authority meetings. Coordination among regional members and other relevant agencies in the development of data has occurred for several specific projects (e.g. Raise Lower Bear Reservoir project, EBMUD's WSMP 2040) with data shared by and between the participating agencies. Collaboration between agency and stakeholder participants in the Upper Mokelumne River Watershed Assessment Project led to the development of a major water quality database which in turn supported the development of the WARMF (Watershed Assessment and Risk Management Framework) water quality model. UMRWA Board and committee meetings, and meetings of the Regional Participants Committee, have served as venues for sharing data on subjects ranging from climate change to public health dangers of swimming in certain local waters. Environmental documentation processes (i.e. CEQA and NEPA) have also allowed for dissemination of data developed for review by interested stakeholders and the public.

Data collection and review is an on-going activity; one to be continued throughout the preparation and implementation of the IRWMP update. However, given the recent changes in regional governance structure, how the data to be collected via the implementation of future projects is managed and disseminated will need to be assessed and revised, as appropriate, to meet the new regional structure.

## Resource Management Strategies

In the 2006 IRWM Plan, the MAC region considered water management strategies in both the development of its regional goals and objectives (as summarized in Section 1.6) and as a criteria for prioritizing projects in the plan. Specifically, each proposed project was evaluated as to the water management strategies employed and then the projects were compared with respects to both the regional goals and objectives and water management strategies met. This analysis occurred as part of the Tier 1 prioritization process.

One key change that occurred between Prop 50 IRWM Plan Guidelines and the Prop 84 IRWM Plan Guidelines (DWR, 2010) is that the strategies to be considered in the IRWM Plan were both renamed (to Resource Management Strategies) and expanded to include improved flood management, practice resources stewardship, and improved operational efficiency transfers. As part of the IRWM Plan update, the resource management strategies contained in the California Water Plan Update 2009 will be fully considered, and all projects included in the IRWM Plan will have to be reevaluated as to how it meets both updated regional objectives and these new resource management strategies. If needed, the regional objectives and goals will be revised to maximize the appropriate incorporation of resource management strategies.

Further, all projects to be included in the Plan update (both existing and new projects) will require evaluation as to the additional potential for integration and synergistic development of benefits. Then, the existing project prioritization process will have to be examined to ensure that it is (1) still applicable to the region and (2) is reflective of these changed standards. The revised prioritization process resulting from this examination will then be used to evaluate all projects to be included in the MAC IRWM Plan update.

## Implementation of the IRWMP

For the 2006 MAC IRWMP, each participating agency signed a Memorandum of Understanding (MOU) that outlined the roles and responsibilities of the agencies and laid the groundwork through which the IRWMP was implemented. With the assumption of RWMG responsibilities by UMRWA, the practical implementation of the IRWM Plan was assumed, but the formal documentation of the process is pending and will be part of the IRMW Plan update.

As part of the RWMG role, UMRWA has been directly facilitating MAC Plan projects and programs as well as assuming a third-party role, coordinating and facilitating projects jointly-developed by two or more of the individual agencies in the region to maximize benefits to the region as a whole.

As previously described, UMRWA is comprised of nine local agencies with fundamental responsibilities for managing natural and manmade water systems, water supply reliability, water quality, environmental stewardship and flood management in the MAC region. These local agencies, working as the regional water management group UMRWA for the purposes of enhancing water supply and protecting water quality and the environment, may pursue specific 'watershed projects and/or water supply projects'. These projects are defined in the joint powers agreement as a 'program of activities or a capital project' or any interest therein undertaken by the Authority. Specific examples of the types of potential watershed projects and water supply projects the Authority is authorized to pursue and have pursued are shown below in Table 24.

**Table 24: Examples of UMRWA Watershed and Water Supply Projects**

<b>Project Category</b>	<b>Project Type</b>
Watershed restoration	<ul style="list-style-type: none"><li>- Erosion control and prevention projects</li><li>- Removal of defunct diversion structures</li><li>- Remediation of point source pollution</li><li>- Repair or removal of substandard forest roads</li><li>- Habitat restoration for riparian-dependent species</li></ul>
Watershed assessment	<ul style="list-style-type: none"><li>- Watershed management studies</li><li>- Water quality monitoring</li><li>- Landslide risk monitoring and mitigation</li><li>- Channel dynamics, sediment loading, gravel replacement</li></ul>
Acquisition of critical watershed lands	<ul style="list-style-type: none"><li>- Fee simple acquisition</li><li>- Conservation easements</li></ul>
Public education	<ul style="list-style-type: none"><li>- Watershed education programs</li></ul>
Wildfire management	<ul style="list-style-type: none"><li>- Fire hazard assessment and mitigation</li><li>- Ecologically sound fire prevention projects</li><li>- Creation of strategic fire breaks</li></ul>
Water supply and conservation projects	<ul style="list-style-type: none"><li>- Integrated conjunctive use</li><li>- Water conservation and recycling</li><li>- Surface water storage</li></ul>

As part of their role in promoting integrated water solutions, UMRWA also facilitates the advancement of projects that are being jointly developed by several agencies. In these instances, the Authority serves as a third-party coordinator and administers various predetermined aspects of the joint program. The Authority serves in this capacity only when requested by the individual project sponsors and will continue this role in the future.

## Impacts and Benefits of IRWM Plan Implementation

Development and implementation of the MAC IRWM Plan provides both impacts and benefits to the MAC Region. Key benefits achieved through the Plan update and implementation include:

- **Development of regional projects and programs with synergistic benefits.** An example of this is the South Shore Camanche Regional Water Treatment Plant project.
- **Integration of program and projects within a hydrology region or subregion.** An example of such a project is the IRCUP, an inter-regional project designed to provide water storage that will both ensure reliability of supply during periods of drought as well as mitigate

impacts to the Mokelumne River by allowing conjunctive management of surface water and groundwater supplies.

- **Resolution of water-related conflicts within and/or between regions.** In the MAC Region, there are on-going intra-regional conflicts over the need for additional surface storage with regards to the potential impacts on the Mokelumne River. Additionally, there are continuing water-related conflicts between the MAC Region and downstream and distant Mokelumne River water users over the allocation of supplies in dry years. In both cases, projects have been historically proposed and discussed that could potentially end these conflicts. Similarly, this proposed scope of work contains a task (Task 2) specifically focused on developing collaborative decision making in the MAC Region and between the MAC and East San Joaquin IRWM Region to help resolved these age-old conflicts.
- **Addresses critical water supply or water quality needs of disadvantaged communities.** Contained in the IRWM Plan, and proposed for the plan update, are several projects that will directly address water supply and quality for DACs. An example of this is the Lake Camanche Tank Rehabilitation and Lateral Replacement Project directly benefiting the Lake Camanche area, an identified DAC.
- **Effectively integrates water management with land use planning.** The MAC Region's RPC is only one regional forum in which land use planners and water managers come together to jointly address water resource management issues. By directly addressing this connection in the IRWM Plan update, the MAC Region will be solidifying this relationship, immortalizing the realization of the connection between land use and water resources, and will be providing protocols that will help foster future collaboration between both sets of decision makers. With UMRWA serving as the lead agency for the MAC Plan, it is uniquely positioned to integrate water management and land use planning within the region. With UMRWA comprised of the three Counties with land use authority over virtually the entire MAC Region (Amador, Calaveras and Alpine Counties), and the six water agencies with water supply responsibilities in the region, UMRWA has a fundamental interest in ensuring the integrate of water management and land use decision making.
- **Addresses Statewide priorities.** Implementation of the work proposed herein will address drought preparedness, water use efficiency, water reuse, climate change response actions, expanded environmental stewardship, surface water and groundwater quality protection, ensured equitable distribution of benefits and collaboration with Native American tribes in the region.

If the sought-after grant funding is not received, the likelihood of the IRWM Plan update being prepared is severely diminished and, in the least, scaled back significantly. The MAC Region is a sparsely-populated area and does not have a large rate-payer base from which to fund projects and plans. Furthermore, UMRWA as a JPA is not in a position to levy fees or rates to pay for such planning measures. To this end, the MAC region relies on State assistance to achieve detailed planning measures. And if the IRWM Plan is not updated and implemented, it is very likely that regional water conflicts will continue into the future and that movement towards the development and implementation of regional and inter-regional water management solutions will be much slower, placing the region at greater risk of impact resulting from climate change and downstream population growth.

## Current IRWM Plan Standards

The MAC IRWM Plan was prepared in November 2006 based on the Proposition 50 Guidelines. In order to meet the current IRWM Plan Standards, multiple sections of the existing Plan will require updating and some sections will be entirely new. Since completion of the existing Plan, the MAC Region has modified their boundaries, removing the portion of the Region that once overlaid San Joaquin County. Additionally, since the development of the original IRWM Plan, the region has revised its governance structure, and the Upper Mokelumne River Watershed Authority (UMRWA) began managing the IRWM planning process. While most of these changes were documented in the 2009 RAP application, these changes have not yet been incorporated into the IRWM Plan itself. Adding this information, along with revisions, amendments and changes to other parts of the Plan, will allow the Plan Update to meet current plan standards and ensure the Plan update most accurately reflects the recent progress made in the planning process.

As previously noted, the Prop 84 IRWM Plan Standards include several new and extensively modified requirements. These sections reflect data gaps in the existing MAC IRWM Plan and include:

- Climate change and adaptive management
- Resource management strategies
- Project review process
- Land use planning and its relation to the IRWM planning

In order for the Plan update to meet Prop 84 Plan Standards, these sections will need to be analyzed and developed for incorporation into the updated plan. Table 25 describes how the existing MAC IRWM Plan meets the current IRWM Plan standards as described in the *Proposition 84 & Proposition 1E IRWM Guidelines* (August 2010).



**Table 25: Existing Plan and Current IRWM Plan Standards**

<b>IRWM Plan Standard</b>	<b>IRWMP to Include</b>	<b>Existing Plan Meets Current Standards</b>	<b>Update Required</b>
Governance	<ul style="list-style-type: none"> <li>Name the RWMG responsible for development and implementation of the Plan.</li> <li>RWMG and individual project proponents who adopted the Plan.</li> <li>Description of the IRWM governance structure.</li> <li>Description of how the chosen form of governance addresses various activities and decisions.</li> </ul>	No	The existing Plan was developed by a number of agencies that signed an MOU forming the MAC Region. The RWMG is now the Upper Mokelumne River Watershed Authority (UMRWA); discussion of UMRWA and the governance structure was included in the Region's RAP submittal to DWR in 2009. This will be included in a Plan Update.
Region Description	<ul style="list-style-type: none"> <li>Description of the watersheds and water systems within the Region.</li> <li>Description of internal boundaries.</li> <li>Description of water supplies and demands, including potential effects of climate change.</li> <li>Comparison of current and future water quality conditions in the Region.</li> <li>Description of social and cultural makeup of the regional community.</li> <li>Description of major water related objectives and conflicts.</li> <li>Explanation of how the IRWM regional boundary was determined and why it is appropriate.</li> <li>Identification of neighboring and/or overlapping IRWM efforts and explanation of planned/working relationship.</li> </ul>	Partially	Since completion of the 2006 Plan, the regional boundaries have been modified. The portion of the Region overlying San Joaquin County has been removed. This will be captured in the Plan Update. The potential effects of climate change on the Region will also be summarized here. A full description of the climate change analyses will be included in the Climate Change section.
Objectives	<ul style="list-style-type: none"> <li>Present Plan objectives that are measurable and describe the process used to develop them.</li> <li>Explanation of prioritization of objectives if they are prioritized or reason they are not prioritized.</li> </ul>	Yes	A general update to the section would be included in a Plan Update to revisit the objectives as they were initially developed years ago.

<b>IRWM Plan Standard</b>	<b>IRWMP to Include</b>	<b>Existing Plan Meets Current Standards</b>	<b>Update Required</b>
Resource Management Strategies (RMS)	<ul style="list-style-type: none"> <li>Resource management strategies considered to meet IRWM objectives and which strategies were incorporated into the Plan.</li> <li>Effects of climate change.</li> </ul>	Partially	The existing Plan included discussion of water management strategies, but many strategies have since been added to the IRWM Plan Standards. These will be added to the Plan Update. Climate change will be a factor in considering the RMS.
Integration	<ul style="list-style-type: none"> <li>Structures and processes that provide opportunities to develop and foster integration.</li> </ul>	Yes	A general update to this section would be included in a Plan update.
Project Review Process	<ul style="list-style-type: none"> <li>Procedures for submitting a project to the RWMG.</li> <li>Procedures for review of projects considered for inclusion into the Plan.</li> <li>Displaying the lists of selected projects.</li> </ul>	Partially	The existing plan includes a project prioritization section; this section would be updated to reflect potentially new objectives for the Region and address the new standards of the project review process as a whole. Additionally, a process for periodically updating projects in the plan will be formulated.
Impact and Benefit	<ul style="list-style-type: none"> <li>Discussion of potential impacts and benefits of Plan implementation.</li> </ul>	Yes	This section would be updated to reflect other revised sections.
Plan Performance and Monitoring	<ul style="list-style-type: none"> <li>Performance measures and monitoring methods to ensure the objectives of the Plan are met.</li> </ul>	Yes	This section would be updated to reflect other revised sections.
Data Management	<ul style="list-style-type: none"> <li>Process of data collection, storage, and dissemination to IRWM participants, stakeholders, public, and the State.</li> </ul>	Yes	This section would be updated to reflect other revised sections.

<b>IRWM Plan Standard</b>	<b>IRWMP to Include</b>	<b>Existing Plan Meets Current Standards</b>	<b>Update Required</b>
Finance	<ul style="list-style-type: none"> <li>• Possible funding sources, programs, and grant opportunities for the development &amp; ongoing funding of the Plan.</li> <li>• Funding mechanisms (e.g. rate structures) for projects that implement the Plan.</li> <li>• Explanation of the certainty and longevity of known or potential funding for the Plan and projects included in the Plan.</li> <li>• Explanation of how O&amp;M costs for projects would be covered.</li> </ul>	Yes	This section would be updated to reflect other revised sections.
Technical Analysis	<ul style="list-style-type: none"> <li>• Data and technical analyses that were used in the development of the Plan.</li> </ul>	Yes	This section would be updated to reflect other revised sections.
Relation to Local Water Planning	<ul style="list-style-type: none"> <li>• A list of local water plans used in the Plan.</li> <li>• Discussion of how the Plan related to planning documents and programs established by local agencies.</li> <li>• Description of the dynamics between the Plan and local planning documents.</li> </ul>	Yes	This section would be updated to reflect other revised sections.
Relation to Local Land Use Planning	<ul style="list-style-type: none"> <li>• Current relationship between local land use planning, regional water issues, and water management objectives.</li> <li>• Future plans to further a collaborative, proactive relationship between land use planners and water managers.</li> </ul>	Partially	Land use within the Region was briefly discussed in the existing Plan; it will be expanded upon and include a more robust description.

IRWM Plan Standard	IRWMP to Include	Existing Plan Meets Current Standards	Update Required
Stakeholder Involvement	<ul style="list-style-type: none"> <li>• Description of public process that provides outreach and an opportunity to participate in the Plan development and implementation.</li> <li>• Process used to identify, inform, invite and involve stakeholder groups in the IRWM process.</li> <li>• Discussion of how RWMG will endeavor to involve DACs and Native American tribal communities in the IRWM planning effort.</li> <li>• Description of the decision making process.</li> <li>• Discussion regarding how stakeholders are necessary to address the objectives and resource management strategies.</li> <li>• Discussion of how collaborative processes will engage a balance of the interest groups regardless of their ability to contribute financially to the Plan's development or implementation.</li> </ul>	Partially	DACs would be identified using 2010 U.S. Census data, followed by additional outreach. The section would be updated to include all outreach endeavors for the Regional's IRWM planning since completion of the existing Plan in 2006. Additionally, this section of the IRWM Plan will be revised to reflect the creation of the RPC and new Outreach Plan elements.
Coordination	<ul style="list-style-type: none"> <li>• Identification of process to coordinate water management projects and activities of participating local agencies and stakeholders to avoid conflicts and take advantage of efficiencies.</li> <li>• Identification of neighboring RIWM efforts and how cooperation/coordination with these efforts will be accomplished.</li> <li>• Identification of areas where a State agency may be able to assist in communication, cooperation, or implementation of Plan components, processes, projects, etc.</li> </ul>	Yes	This section would be updated to reflect other revised sections.

IRWM Plan Standard	IRWMP to Include	Existing Plan Meets Current Standards	Update Required
Climate Change	<ul style="list-style-type: none"> <li>• Discussion of the potential effects of climate change on the IRWM region, including an evaluation of the IRWM region's vulnerabilities to the effects of climate change and potential adaptation responses.</li> <li>• Process that discloses and considers greenhouse gas emissions when choosing between project alternatives.</li> </ul>	No	Climate change was not addressed during the development of the existing Plan. A brand new analysis would be conducted in order to address climate change and adaptive management in the Region.

## WORK PLAN TASKS

The November 2006 MAC IRWM Plan was developed based on the Proposition 50 Guidelines and requires updating in order to be consistent with current IRWM Plan Standards and to accurately reflect the Region's current needs, issues, and objectives. As described in the background section (Chapter 1), since completion of the 2006 MAC Plan, the MAC Region has made changes to their boundaries, to the governance structure and Regional Water Management Group (RWMG), and made progress in updating some sections included in the Plan. Additionally, the MAC Region became an approved region through the 2009 RAP. Various sections of the RAP application help to better define the Region and will be added to the Plan update as part of this proposed scope of work.

In general, there are some IRWMP standards that have not been addressed since completion of the existing MAC Plan or that will require significant revisions to be brought to current conditions. Additionally, the Plan update provides an important opportunity to address intra- and inter-regional conflicts associated with conjunctive use opportunities, including increased water storage. This scope of work includes tasks for analyzing these items (both new and those requiring revisions) and for developing plan sections that meet the new Prop 84 IRWMP standards.

Once implemented, the tasks described herein will result in an integrated plan that not only meets the Prop 84 IRWMP standards, but one that will meet the Program Preferences as defined in the Prop 84 Planning Grant Project Solicitation Package. Specifically, the revised IRWMP that will result from this scope of work will:

- Include regional projects and programs;
- Integrate (through its collaboration with the East San Joaquin IRWM Region) water management programs and projects within a hydrologic region;
- Provide a Collaborative Decision Making Plan that addresses MAC Region water resource needs and interests and reduces related intra- and inter-regional water resource conflicts.
- Address critical water supply needs of disadvantaged communities in the region;
- Contribute to the attainment of one or more of the objectives of the CALFED Bay-Delta Program by improving upstream water quality and supply;
- Integrate water management with land use planning;
- Provide flood control and/or protection benefits (alone or in addition to other benefits); and
- Address Statewide priorities.

### Task 1 – Update and Integrate IRWM Plan

Task 1 entails revising the existing Plan to meet current Standards and reflect the changes that have occurred since 2006, including modifications to the Region itself and the way in which the planning process is conducted. Each subtask included under Task 1 is the completion and revision to multiple sections of the Plan which directly coincide with the current Plan Standards, except for Subtask 1.5 which includes Plan adoption.

#### **Subtask 1.1 – Sections to be Updated with Existing Information**

This subtask recognizes that there are many portions of the 2006 MAC IRWM Plan and the 2009 MAC RAP application that are still valid and current or that will require little work to bring them to Prop 84 Guideline standards. To this end, the following sections of the original 2006 IRWM Plan will be updated using existing documents such as the 2009 MAC RAP application:

- Governance
- Region Description
- Coordination
- Relation to Local Water Planning
- Technical Analysis
- Plan Performance Monitoring
- Stakeholder Involvement

Once the 2006 MAC IRWM Plan sections have been updated using the 2009 MAC RAP application and other documents developed since the original Plan, each section will be reviewed in light of Prop 84 Guidelines to ensure that they meet the required standards. If data gaps or shortfalls exist, additional work will be conducted, as needed, and the sections modified to ensure compliance. The updated sections prepared in Subtask 1.1 will be assembled and presented to the UMRWA Board of Directors at regular or special public board meetings for approval.

**Deliverables:**

- *Revised IRWM Plan Sections for Governance, Region Description, Coordination, Relation to Local Water Planning, Technical Analysis and Plan Performance Monitoring*
- *Agenda, briefing report addressing Subtask 1.1 updated sections, and meeting presentation materials for consideration by the UMRWA Board of Directors*

### **Subtask 1.2 – Sections to be Reviewed and Revised as Appropriate**

While some sections of the 2006 MAC IRWM Plan are fairly close to current, there are other parts of the original plan that do need to be revisited to determine their applicability to the region as it currently is, and to be revised as appropriate. Much has changed in the MAC Region over the last four years; not only has the IRWM governance structure been modified and expanded (as documented in the RAP application), the State has experienced a multi-year drought and a severe economic downturn from which it has not yet completely recovered. All of these factors have altered the water management landscape and therefore require the reevaluation of plan sections.

It is anticipated that the following plan sections will need to be re-examined, in detail, to ensure that they are applicable to the region in addition to the Prop 84 plan standards:

- Regional Objectives
- Resource Management Strategies
- Integrated Data Management
- Project List
- Project Prioritization Process
- Project List Update Process
- Project Integration
- Impacts & Benefits
- Finance

The primary method by which these sections will be re-evaluated will be through the RPC coordinated with consultant contributions. It is anticipated that the RPC will be tasked with evaluating



specific IRWM Plan sections for completeness and compliance with the Prop 84 Guidelines, and for determining the effectiveness and appropriateness of the section contents. Recommendations will then be made for modifications, and the recommendations vetted with the Board Advisory Committees before integration into the plan update.

For incorporating projects into the updated plan, it is expected that a general call for projects will be issued, with specific requirements for data submittals (e.g. a form will be used for project-specific information submittals). These projects will then be compared against region-specific minimum criteria (previously developed by the RPC and BAC), and those that meet the minimum criteria will be forwarded for project evaluation and prioritization. Following project evaluation with respect to minimum criteria, projects carried forward will be assessed for additional possible integration and/or modification to both integrate project components and to identify synergistic benefits between projects. Procedures for submitting a project, for considering a project for inclusion in the revised IRWM Plan, for project integration, and for communicating the list(s) of selected projects will be developed by the RPC and will be vetted with the Board Advisory Committee (BAC) before being applied.

The RPC will also develop a prioritization process for evaluating the projects received against a multi-tiered set of criteria. The team tasked with developing the prioritization process will consider regional goals and priorities, along with the Statewide Priorities and Program Preferences in their scoring/ranking criteria. Factors to be considered in the scoring/ranking process may include, but are not limited to:

- How the project contributes to the IRWM Plan objectives
- Technical feasibility
- Resource management strategies employed by the project (i.e. flood control, water supply)
- Specific benefits to DACs and/or Native American tribal communities
- Environmental Justice considerations
- Project cost and financing
- Economic feasibility
- Project Status/readiness to proceed
- Project integration/multiple benefits
- Contribution to adaption to climate change
- Contribution to greenhouse gas emission reduction

Further, the RPC will develop a process for periodically updating the project list during the MAC Plan implementation period, including protocols for project re-evaluation. Both processes (prioritization and project list update) will be vetted by the BAC before being applied.

In addition, the results of Task 2 – Conflict Assessment and Collaborative Decision Making, will be integrated into the appropriate sections of the revised IRWM Plan, including, but not limited to, the sections describing project integration, impacts & benefits, and coordination (in Subtask 1.1). This work will further the effectiveness of the revised IRWM Plan by furthering the dialogue regarding the means for providing additional supply storage and water supply reliability while resolving both intra- and inter-regional conflicts over that same water supply.

Finally, a special subcommittee of the RPC (with consultant support) will be proposed to develop data collection and management protocols to be implemented by the region as part of the MAC IRWMP implementation. These protocols will determine how data is collected during IRWMP implementation,

the types of data to be collect, collection methodology, data review protocols and data management and reporting procedures.

The revised sections prepared in Subtask 1.2 will be assembled and presented to the UMRWA Board of Directors at regular or special public board meetings for approval.

**Deliverables:**

- *Revised IRWM Plan Sections for Regional Objectives, Resource Management Strategies, Stakeholder Involvement, Integrated Data Management, Project List, Project Prioritization Process, Project Integration, Impacts & Benefits, Finance*
- *Project Submittal Form/Protocols*
- *Updated project list and descriptions*
- *Project Prioritization Protocols*
- *Data Management Protocols*
- *Agenda, briefing report addressing Subtask 1.2 revised sections, and meeting presentation materials for consideration by the UMRWA Board of Directors*

### **Subtask 1.3 – New Plan Sections**

The Prop 84 Guidelines for IRWM Plans (DWR, August 2010) includes requirements for two new sections: Relation to Local Land Use Planning and Climate Change. Under Subtask 1.3, these new sections will be prepared and integrated into the overall IRWM Plan update.

#### **RELATION TO LOCAL LAND USE PLANNING**

As described in the Prop 84 Guidelines, the intent of this section is to (1) require an exchange of knowledge and expertise between land use and water resource managers; (2) examine how RWMGs and land use planning agencies currently communicate; and (3) identify how to improve planning efforts between the RWMGs and land use planning agencies. In preparing this section, the MAC Region will draw on existing relationships between UMRWA (the RWMG) and city and county planning departments. At present, the Cities of Jackson and Plymouth, and Amador, Calaveras and Alpine Counties are the land use planning agencies currently participating on the RPC and/or the UMRWA Board of Directors. It is through these working venues that the relationship between local land use planning and regional water issues, and water management objectives will be addressed. To that end, a RPC subcommittee will be proposed to work with contracted consultants to review local land use planning documents (i.e. General Plans, watershed management plans for fire protection and grazing), identify linkages between these documents and regional water resource management, and create protocols to further communication and develop a collaborative, proactive relationship between local land use planners and water managers. Additionally, the land use description for the MAC Region, as discussed in the 2006 IRWM Plan, will be expanded upon to provide a more robust description.

#### **CLIMATE CHANGE**

As part of this subtask, an analysis of the effects of climate change on the MAC Region will be prepared and incorporated into the revised IRWM Plan. This subtask will use existing studies, such as the work conducted as part of EBMUD's Water Supply Management Project (WSMP) 2040, to document the anticipated impacts of climate change on water supply, discuss potential implications of legislation and policy relating to climate change on regional water management, evaluate the

adaptability to climate change of water management systems in the region, and identify possible adaptive management strategies (actions, policies, procedures, etc.) that can be implemented in the region. These adaptation strategies will consider changes in the amount, intensity, timing, quality and variability of runoff and recharge within the region.

As with the preceding subtasks, the new sections prepared in Subtask 1.3 will be assembled and presented to the UMRWA Board of Directors at regular or special public board meetings for approval

*Deliverables:*

- *Revised land use description*
- *IRWM Plan Section – Relation to Local Land Use Planning*
- *Protocols for enhancing communication and collaborative decision making between land use planners and water managers*
- *Revised Regional Description plan section*
- *IRWM Plan Section – Climate Change*
- *Recommendations for adaptive management strategies for the MAC Region*
- *Agenda, briefing report addressing Subtask 1.3 revised sections, and meeting presentation materials for consideration by the UMRWA Board of Directors*

### **Subtask 1.4 – IRWM Plan Update Process Management**

The primary purpose of this subtask is for the coordination between consultants, RPC, Board Advisory Committee and UMRWA Board of Directors involved in the IRWM Plan revision, update and implementation. Work to be conducted under this subtask includes, but is not limited to:

- General coordination of IRWM Plan update completion and production
- Conducting meetings and conference calls regarding project status, schedule and/or budget
- Regular reporting to UMRWA Board of Directors regarding project status and deliverables
- Regular communication with Board Advisory Committee and Regional Participants Committee members regarding project implementation and plan completion
- Authority Counsel review of select plan sections (e.g. Governance, Relation to Local Land Use Planning), CEQA compliance determination and contract reviews
- Coordination of plan adoption by all entities, including presentations to agency Boards of Directors, as required by the Prop 84 IRWM Guidelines

Finally, following completion of revisions to the MAC IRWM Plan, a determination will be made as to the environmental compliance of the work conducted as described herein. This determination will be made by the UMRWA Board of Directors with the advice of Authority Counsel. Preliminarily, the revised IRWM Plan appears exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15262 because the Plan update is a planning study that identifies potential projects, programs, and policies for possible future actions, but does not have a legally binding effect on participating agencies. Similarly, the IRWM Plan is categorically exempt from CEQA pursuant to Sections 15306 (Class 6) because the Plan consists of basic data and information collection and evaluation of water resources management activities. As stated above, however, a final determination regarding the appropriate environmental compliance will be made upon completion of the updated MAC IRWM Plan.

*Deliverables:*

- *Monthly or as-needed project coordination conference calls*
- *Quarterly progress reports to Board Advisory Committee and Board of Directors*
- *CEQA Determination by Authority Counsel*
- *Presentation materials to facilitate updated MAC Plan adoption by participating agencies*

### **Subtask 1.5 – IRWM Plan Production and Adoption**

Once the various sections of the revised MAC IRWMP have been analyzed, written, and vetted, the draft plan will be produced, both electronically and in hard copies, for review by the public. The MAC Region Collaborative Decision Making Plan, developed under Task 2, will also be incorporated into the public draft and final MAC Plan versions.

Electronic copies of the draft IRWMP update will be posted on the MAC Region's website, while hard copies will be placed in local libraries and other locations easily accessed by the public. Following a public review and comment period, the MAC IRWM Plan will be revised and produced in final form. Following production, UMRWA and other participating agencies planning to adopt the revised plan will publically notice the adoption intent. The MAC IRWM Plan update will be adopted by UMRWA at their regular Board of Director's meeting. Other member agencies will adopt the plan, as appropriate, following similar noticing and adoption protocols.

*Deliverables:*

- *Public Draft and Final MAC IRWM Plan*
- *Notices of Intent to Adopt*
- *Adopting Resolutions*
- *Agenda briefing report presenting final draft MAC IRWM Plan and associated meeting presentation materials for consideration by the UMRWA Board of Directors*

## **Task 2 – Conflict Assessment and Collaborative Decision Making**

The Mokelumne River flows east to west from the Sierra Nevada Mountains to California's Bay-Delta. The Upper Mokelumne River, which bisects the MAC IRWM region, flows into EBMUD's Pardee Reservoir and then to Camanche Reservoir. The Lower Mokelumne River flows from Camanche Reservoir through northeastern San Joaquin County to the Bay-Delta and lies within both the MAC Region and the Eastern San Joaquin IRWM Region. The Northeastern San Joaquin Groundwater Banking Authority (GBA) is responsible for water resource planning in the Eastern San Joaquin Region.

Stakeholders from both the MAC Region and the Eastern San Joaquin Region, working through the Mokelumne Water Forum since 2005, have developed and evaluated projects to help resolve water-related conflicts between and within the regions. The most recent of these projects, the Inter-Regional Conjunctive Use Project (IRCUP), has appeal to stakeholders in both regions. However, as with other projects in the past, there is significant opposition to some of the project elements. This ongoing opposition, combined with distrust among many of the stakeholders, has prevented both regions from implementing a project that could solve some of the regions' water supply problems.

In general, Mokelumne River stakeholders include the following organizations:

<b>Environmental:</b>	<b>Water Purveyors:</b>	<b>Counties:</b>
Foothill Conservancy	Amador Water Agency	Amador County
Friends of the River	Calaveras Co Water District	Calaveras County
Sierra Club	Calaveras PUD	
	Jackson Valley ID	
	East Bay MUD	
<b>Recreation:</b>	<b>Business:</b>	<b>Other:</b>
Commercial rafting companies	Chambers of Commerce	CA Fish and Game
Private boaters	Ranching operations	Central Valley RWQCB
Fishing/fly fishing groups	PG&E	

There is reason to believe that a focused effort to identify key MAC and Eastern San Joaquin Region needs and interests, and collaboratively build approaches for addressing them, could improve communication, significantly reduce regional and inter-regional conflicts, and could potentially identify a broadly-supported project approach that integrates multiple interests and benefits. There is no active collaborative effort currently underway to address the specific needs and interests of both the MAC and Eastern San Joaquin Region stakeholders. While the Mokelumne Forum has provided an intermittent opportunity for education and discussion between some stakeholders in the two regions, it has not had the resources to support comprehensive stakeholder conversations within either of the two regions.

The goal of Task 2 is to develop a Collaborative Decision Making Plan that addresses the MAC Region needs and interests in inter-regional project(s) that reduce intra- and inter-regional water conflicts and ensures the sustainability of local water resources. The Collaborative Decision Making Plan, which will become an integral element of the updated MAC Plan (stakeholder, inter-regional and resource integration), will be subsequently implemented by MAC Region stakeholders.

### **Subtask 2.1: Conflict Assessment and Report**

The initial subtask will be to plan and conduct an assessment of key needs and interests of MAC Region stakeholders as they relate to water storage project(s) and how these have contributed to conflict that affects planning and decision making. The assessment will also explore stakeholder experiences and attitudes toward different approaches to collaborative decision making and test responses to a variety of process options. Information gained through the assessment process will be used to prepare a report that is available to all assessment participants. The report will review key findings about MAC Region interests, needs and key attitudes, and about regional interests and needs about collaborative decision making.

The assessment likely will involve the following:

- Meeting with UMRWA to confirm project decision, timeframe, and expectations, and establish coordination
- Develop list of key stakeholders for assessment interviews
- Conduct in-person interviews, either one-on-one or with small groups [assume 20 interviews]

- Draft assessment report
- Conduct follow-up calls to stakeholders to confirm or clarify information
- Finalize and distribute assessment report
- Project coordination including contract administration

*Deliverables:*

- *List of stakeholders*
- *Draft and Final Assessment Report*

## **Subtask 2.2: Collaborative Decision Making Process Options and Selection**

Subtask 2.2 involves development of a collaborative process options summary presentation and one meeting with stakeholders to review the presentation and select a preferred collaborative process approach.

This subtask will include the following:

- Develop presentation with summary of assessment and multiple Collaborative Decision Making process options. The presentation will evaluate the suitability of each option for addressing MAC Region conflicts associated with storage projects and water resources management. The process options will reflect the stakeholder input gathered in Subtask 2.1.
- Conduct one meeting to share the presentation and build agreement on the collaborative process option preferred by the MAC Region stakeholders.
- Prepare Collaborative Decision Making Process Options and Selection final report that summarizes MAC Region stakeholder decision.

*Deliverables:*

- *Collaborative Decision Making Process Options and Selection Presentation*
- *Final report reflecting MAC Region stakeholder decision(s)*

## **Subtask 2.3: Joint Problem Solving Statement to Support Collaborative Decision Making**

The preliminary design for any facilitated decision making approach ultimately selected by the MAC Region stakeholders will include building agreement on a draft joint problem solving statement among key stakeholders. This statement is intended to identify all key interests that must be addressed in order to achieve broad MAC Region support for a water storage/management project. It would also serve as a primary reference point for Subtask 2.4.

This subtask is intended to be an initial test of the ability of stakeholders to reach working agreements. It can serve to establish or improve relationships and promote confidence in prospects for success. The following work items will be conducted under this subtask:

- Plan and facilitate half-day meeting to develop a draft joint problem solving statement
- Support stakeholder negotiation and consultation for draft approval
- Plan and facilitate half-day decision meeting (if needed) to adopt final statement
- Finalize and distribute statement



Deliverables:

- *Meeting agenda, notes, and handouts*
- *Joint problem solving statement to use in developing a Collaborative Decision Making Plan (Task 2.4)*

### **Subtask 2.4: MAC Region Collaborative Decision Making Plan**

Based on the collaborative decision making option selected in Subtask 2.2 and the joint problem solving statement developed in Subtask 2.3, a Collaborative Decision Making Plan will be prepared. The specific content of the Plan will depend on the stakeholders' needs and requirements. The Plan is expected to address the following topics:

- Organization: staffing needs, meeting logistics and schedule, representation and authority, consultation with constituencies or decision makers, ground rules, communication protocols, agenda setting, and a charter document
- Information: history, legal framework, data and technical information needs (including environmental concerns)
- Decision making: identifying acceptable decision rules, e.g., broad agreement, "live with it," consensus or unanimity, difference in approach to process and substance
- Implementation: linking facilitated process agreements and outcomes to stable formal agreements

Work items to be conducted in Subtask 2.4 include: drafting and revising the Plan, as necessary; discussing the initial Plan with an *ad hoc* Plan review group; and presenting the Plan for discussion and approval by MAC stakeholders.

Deliverables:

- *Draft and Final Collaborative Decision Making Plan including draft charter document for initial MAC stakeholder meeting*

### **Subtask 2.5: UMRWA Board Workshop**

The deliverables described in the preceding Task 2 subtasks will be summarized into four Board briefing reports and presented to the UMRWA Board at three regular meetings and at a special public meeting to review the final Collaborative Decision Making Plan.

Deliverables:

- *Board briefing reports and public presentations of Task 2 results*

## **Task 3 – Public Outreach**

Task 3 is the public outreach component of the IRWM process. As implemented by the following subtasks, the existing MAC Region outreach program will be continued and expanded as reasonable. Several public workshop/meetings will be held in addition to Board Advisory Committee and RPC meetings, and the results of those meetings fed back into the plan update process. While DAC outreach is an existing component of the MAC Region outreach program, additional efforts will be



made to reach out and encourage direct DAC and Native American participation in the IRWM planning and implementation process.

### **Subtask 3.1 – Regional Participants Committee and Community Outreach**

The Regional Participants Committee (RPC) is an integral part of the IRWM Plan development and implementation process. The RPC presents a diverse set of MAC Region stakeholder interests and as such, provides a central and guiding role in completing and implementing the MAC Plan. As part of their participation on the RPC, the RPC members will provide input on various aspects of the MAC Plan revision process and related work products. To that end, monthly and/or bimonthly RPC meetings are anticipated as part of the MAC Plan revision. It is anticipated that a total of 12 RPC meetings will be held during the Plan revision process, with each meeting linked to specific portion(s) of the plan update and revision. This breakdown would be as follows:

**Table 26: RPC Schedule of Meetings**

<b>IRWM Plan Task</b>	<b>RPC Meeting Number</b>
<b>Subtask 1.1</b>	
Coordination, Regional Description, and Relation to Local Water Planning	1
Governance and Stakeholder Involvement	2
Technical Analysis and Plan Performance Monitoring	3
<b>Subtask 2.2</b>	
Objectives and Strategies	4
Data Management and Project Integration	5
Project Lists and Prioritization	6
Impacts/Benefits and Finance	7
MAC Plan Projects Update Process	8
<b>Subtask 1.3</b>	
Relation to Local Land Use Planning	9
Climate Change	10
<b>Subtask 1.4</b>	
Draft Plan Review and Endorsement	11, 12

It is also anticipated that two community workshops or meetings will be held as part of the IRWM Plan update process. These meetings will be held in conjunction with RPC and/or UMRWA Board meetings. It is expected that one of these community workshops/meetings will be held at the beginning of the IRWMP Plan update process to inform the public as to the anticipated scope of work and to encourage participation. A second community workshop/meeting will be held after the draft plan update has been completed to ‘report back’ to the public on the results of the process.

Additionally, the public will be invited to City Council, County Board of Supervisors and Board of Directors meetings where the IRWM Plan will be adopted.

During the MAC Plan revision and update, consultant support for work product development will be provided through the RPC. Additionally, as previously described, the work products developed by the RPC will be vetted by the Board Advisory Committee before being presented to the UMRWA Board of Directors for approval.

*Deliverables:*

- *Meeting/workshop agendas, presentations, meeting minutes and other documents/handouts as required*

### **Subtask 3.2 – DAC/Native American Outreach**

As part of its ongoing public outreach process, the MAC Region will continue its ongoing communications with DACs, as described in the Public Process section of the Background portion of this Work Plan. As part of its regular RPC function, the MAC Region contacts local DACs to ascertain their interest and encourage active participation in the process. However, under this subtask, the region will extend its existing program further by (1) hosting one or more workshops on the IRWM Plan process in a disadvantaged community and (2) by evaluating alternative means of encouraging direct DAC participation on the RPC. Furthermore, regional Native American communities will be directly contacted regarding the IRWM planning process and encouraged to participate in the process. As with the DACs, the means for encouraging Native American participation on the RPC will be evaluated.

*Deliverables:*

- *Public workshop in disadvantaged community*
- *Meeting(s) with Native American communities*

### **Subtask 3.3 – Website Update**

A MAC IRWMP website is currently active and being hosted by CCWD. The website can be viewed at <http://www.ccwd.org/macirwmp.html>. This website has not, however, been updated since UMRWA assumed the RWMG role. Therefore, the purpose of this subtask is to (1) update the website with the most recent information about the MAC IRWM program, and (2) to determine the long-term means for hosting and updating the website. The MAC Region views this website as a critical means for disseminating IRWM program information to a wide audience. As part of the proposed bi-monthly updates, the website will be revised to maintain current meeting information and post project updates, press releases, meeting materials, and other items of interest. It is assumed the website will continue to be hosted by an UMRWA member.

*Deliverables:*

- *Update to MAC IRWMP website*
- *Approximately bi-monthly updates, including upload of meeting agendas, handouts, presentations, and notes from public workshops and AC meetings*

## Task 4 – Funding Administration

Task 4 encompasses all administrative subtasks required for successful implementation of the proposed scope of work. Included in this task are efforts for tracking and reporting project implementation progress, budget status, and scheduling; monitoring progress implementation; troubleshooting; communicating with DWR, and other similar project management functions.

### Subtask 4.1 – DWR Prop 84 Funding Agreement Administration

Subtask 4.1 encompasses all direct project and funding agreement administration activities that will be required for successful execution and implementation of a funding agreement between UMRWA and DWR. Work to be completed under this subtask includes, but is not limited to:

- Coordination of funding agreement execution
- Ongoing communications with DWR
- Coordination of invoices from other entities and disbursement of funds
- Preparation and submittal of claims requests
- Maintenance of project files as it relates to funding agreement implementation
- Project close-out activities, including preparation of files for future storage

#### *Deliverables:*

- *Funding agreement*
- *Claims (12 anticipated)*

### Subtask 4.2 – Consultant Contract Administration

Under this subtask, the UMRWA project manager will provide direct oversight of two consultants retained for completion of the proposed scope of work. Work to be conducted includes, but is not limited to:

- Preparation and execution of contracting agreements
- Invoice processing
- Payment coordination
- Coordination of work product quality control reviews

#### *Deliverables:*

- *Consultant contracts*

### Subtask 4.3 – Reporting (Quarterly and Final Report)

As will be required by the executed funding agreement, the UMRWA project manager will prepare and submit quarterly reports documenting work completed during the quarter, budget expenditures, schedule updates, invoicing and accounts receivable, and project performance. The quarterly reports will also be an opportunity to identify any potential problems that may be foreseen in completion of the proposed scope of work. Following completion of the proposed scope of work, the UMRWA project manager will prepare and submit a final report as required by the funding agreement. It is anticipated that this report will summarize the project goals and objectives, describe the work that was conducted, document the outreach that was completed as part of the project, and provide a summary of the project effectiveness.

*Deliverables:*

- *Quarterly reports (8 reports in total)*
- *Final report*

